Amateur Radio

Volume 82
Number 10
October 2014
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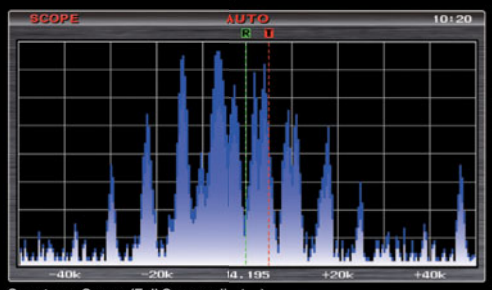

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This month's cover

Our cover this month shows the Table Cape Lighthouse in Tasmania, together with the squid pole forming part of the station of Eric VK7EK, Dick VK7DIK and Marlene VK7LDY for their participation in the International Lighthouse Lightship Weekend. Perhaps they were also getting in early for the MWRS Flagpole Contest with the pirate flag! Photo courtesy of Marlene Gardiner VK7LDY.

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Contributions to Amateur Radio

Amateur Radio is a forum for WIA members' amateur radio experiments, experiences, opinions and news. Manuscripts with drawings and/or photos are welcome and will be considered for publication. Articles attached to email are especially welcome. The WIA cannot be responsible for loss or damage to any material. Information on house style is available from the Editor.

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The opinions expressed in this publication do not necessarily reflect the official view of the WIA and the WIA cannot be held responsible for incorrect information published.

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A radiocommunication service for the purpose of self-training, intercommunication and technical investigation carried out by amateurs; that is, by duly authorised persons interested in radio technique solely with a personal aim and without pecuniary interest.

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Editorial

Peter Freeman VK3PF

Conflict within our hobby?

Following on from the OTY item about conflict between ILLW stations and contesters included in the September issue, this month we publish a follow up from Kevin VK2CE, the local ILLW coordinator.

Our hobby can be viewed as a **very** broad 'church': there are many niches that attract some of us to a particular niche. For example, I have always had an interest in VHF, UHF and microwave weak signal activities. Over the past two years or so, I have been heavily involved in SOTA, chasing other SOTA Activators, plus combining trips with both SOTA and National Parks activations.

I believe that the "problem" alluded to in the original OTY item was that some contest operators were calling ILLW stations and attempting to force the ILLW station to give a contest exchange. In my humble opinion, such actions are totally **against** the spirit of our hobby! Certainly, a contest station can request a contest number, but should respect the right of the non-participant to refuse. After all, the non-contest station was NOT calling "CQ Contest", they would have been calling "CQ Lighthouse" or something similar (or in my case, perhaps "CQ SOTA" or "CQ Parks"). There is nothing in our amateur code that requires us to give a contest number to a contest station. In fact, it is my humble opinion that the contest station is being very forward in calling another station not calling "CQ contest" and then requesting a contest exchange.

I am not trying here to paint all contest operators as behaving in this manner. It is probably only a very small proportion of contesters that behave this way.

Yes, we can all get "caught up in the moment". But being impolite is just that – impolite, probably rude, perhaps even totally inconsiderate! Okay, some may simply respond with a "59001" to get rid of the contester, but this does not solve the issue for the rest of us. The contester will still try to force himself/herself (mind you, I have not yet heard such behaviour from a YL operator) on others looking for a new log entry to add to their contest score.

Such operators are not, in my view, operating within the true ethics of our hobby, as described by "The Amateur Code". Rather, they are totally self-obsessed and selfish, thinking only of their own personal gain, in the form of a higher contest score.

Expressing a logical extension to my thoughts above, perhaps this is a case for the WIA to consider establishing a complaint mechanism whereby the non-contest operator can lodge a complaint with the relevant contest manager, which would result in the offending operator's log being penalised in the contest, perhaps even exclusion for a repeat offender? Drastic action perhaps, but for some, drastic action is perhaps needed to modify the inconsiderate behaviour of the contest operator.

As individual operators, perhaps our only other option is to return to calling "CQ Lighthouse" and refuse to answer the pushy contester, or to hit the "off" button and go for a coffee break?

Continued on page 5

WIA comment

Phil Wait VK2ASD

Spectrum Reboot

I have just returned from the first day of the Radcomms 2015 conference, convened by the ACMA and held over two days in the Sydney Maritime Museum, Darling Harbour. The title of this year's conference, "Spectrum Rebooted – Taking Stock" is appropriate, given the overriding theme of how to maximise the overall public benefit of spectrum, how to reduce the regulatory costs to business, how to align spectrum allocation with the greater public interest, and how to integrate future spectrum reforms into the Australian radiocommunications environment.

ACMA Chair Chris Chapman opened the conference and discussed the outcomes and resulting productivity gains from the 1800 MHz and 400 MHz reviews, the latter affecting our 70 cm amateur band. He highlighted how the public's increasing thirst for instant wireless connectivity, in a world where we are now accustomed to doing things in very different ways, is putting immense pressure on spectrum and spectrum management.

In Chris Chapman's words *"Demand is emerging for access to bands that are traditionally allocated to, or used by, other services".... "especially for bands below 5 GHz and in high population density areas".* Telling words.

The opening address was delivered by the Hon. Malcolm Turnbull, the Federal Minister for Communications. The Minister highlighted how rapidly advancing digital compression technologies were increasing the information capacity and efficiency of spectrum at a rate of about 10% per year, and its positive effect on broadcasting and telecommunications services. The Minister also discussed the need to make spectrum management arrangements simpler and more flexible; citing that in the six years to 2013 mobile broadband alone had contributed some $33 billion to Australia's GDP. In his words, *"Spectral efficiency and harmonisation have obvious economic benefits".*

The following three broad ideas were canvassed by the Minister:

1. A clearer and simpler policy framework, with clear distinction between the processes of policy formation (in the hands of government) and technical regulation (in the hands of the ACMA).
2. Encouraging innovation and reducing regulation by moving to a single licensing framework, where the current arrangements of spectrum, apparatus and class licensing, could be replaced with a single more flexible licence type.
3. Recasting the current broadcasting policy framework to allow more flexible use of broadcasting spectrum, and moving to the more spectrum efficient MPEG4 standard for broadcast television.

Against this background of spectrum scarcity and pressure for change, most of the day was devoted to Industry and government representatives presenting their new technologies, all of which require more spectrum, not less: Ultra High definition TV broadcasting, machine to machine, mobile telecommunications, wide area cattle tracking systems, LTE wireless systems, unmanned aeronautical vehicles (drones), battlefield communications systems, seaborne defence, and airborne warfare systems on the new Joint Strike Fighters were the stand-outs.

All these new developments need either more spectrum, or greater spectrum efficiency to make their business models work and all users including ourselves are also looking for certainty in spectrum allocation and more flexibility in how they use their allocation. One example would be a technology-neutral approach to amateur licensing, where the licensing of permitted transmission modes would be replaced by a simpler restriction on maximum occupied bandwidth.

In early September, and prior to the Radcomms Conference, the WIA lodged a submission to the Department of Communications review into the Australian spectrum policy and management framework. The Department stated the review is necessary to "modernise spectrum policy to reflect changes in technology, markets and consumer preferences that have occurred over the last decade, and to better deal with increasing demand for spectrum from all sectors".

The WIA highlighted amateur radio's long history of not-for-profit public service to the Australian community, through providing emergency communications and as an educational resource, and

Continued on page 5

WIA news

Draft WIA Repeater and Beacon Policy Released

After several months of discussion between the WIA and the various stakeholders, the WIA has now released a draft Repeater and Beacon Policy.

The draft policy attempts to strike a balance between the principals of good spectrum management, (the minimisation of cross-interference between repeaters), and the experimental nature of the amateur service and its inherent need for flexibility.

The WIA encourages all stakeholders to review the draft policy, and forward any comments to the WIA by the 1st November, 2014.

The band segments and frequencies assigned to amateur repeaters and beacons are also currently under review by the WIA as part of the bandplan review. You are also encouraged to make a submission to that review.

Details of the Plan and a link for Comments can be found on the WIA website.

WIA makes its submission to Australian Government Spectrum Review

The WIA has made a submission to the Department of Communications review into the Australian spectrum policy and management framework. The Department states the review is necessary to "modernise spectrum policy to reflect changes in technology, markets and consumer preferences that have occurred over the last decade and to better deal with increasing demand for spectrum from all sectors".

The WIA submission highlights the public-benefit aspects of the amateur service and identifies key areas where amateur radio can provide further substantial community value. Additionally, the WIA submission argues for a clear delineation between policy development and policy implementation, strong community input into future spectrum policy development, and increased resources for the ACMA in relation to interference management and enforcement.

The Spectrum Review discussion paper, along with stakeholder submissions, can be viewed on the ACMA website, and the WIA submission can be downloaded from the WIA web site.

The WIA has also forwarded a discussion document to the ACMA regarding the proposed remake of the Amateur Licence Conditions Determination (the LCD). Amateur radio licence conditions, such as modes and power etc., are not within the scope of the Spectrum Review. Please see the news release on the Amateur LCD remake for more information on those issues.

Important Notice - News Broadcasts

The WIA has been contacted by the ACMA in relation to material of an advertising nature being aired on an amateur radio news broadcast. Upon investigation it was found that the offending material was part of a state-based broadcast, and not the WIA national broadcast originating from the studios of Graham VK4BB.

The WIA wishes to remind all amateurs involved in preparing broadcasts for their local radio clubs that the Radiocommunications Licence Conditions (Amateur Licence) Determination prevents the transmission of material that is, or includes, an advertisement or any form of entertainment. Short music tags introducing the WIA News are not considered entertainment.

To avoid any future confusion, all news broadcasts should clearly identify the originating club or group, and a clear distinction should be made between the national WIA segment and any following broadcast segment originating from another group.

Volunteer wanted

Secretary to Publications Committee

Contact us for more details

WIA comment

Continued from page 3

discusses ways that the public benefit of the amateur radio spectrum can be leveraged in the future.

We argued that public-usage spectrum needs to be valued in quite a different way to for-profit commercial spectrum, and that public interest, or public benefit, is difficult to quantify, is constantly changing and is often highly political in nature. In our view, public-interest spectrum has an imputed value which cannot be measured by the same set of tools used for commercial services, and that certain spectrum bands and uses having an intrinsic or "intangible" value as a social good and not everything can, or should, be reduced to monetary value.

In short, the WIA believes public usage spectrum cannot be measured using a conventional market oriented-valuation approach. (The same situation would apply for, say, defence, governmental or emergency services, research, meteorology and safety of life services).

I was pleased to hear the Minister also talk in terms of the *overall* public benefit of spectrum, which puts a value on all spectrum uses, including those uses that do not provide an immediate financial return, but it remains to be seen how the value of public interest spectrum is to be measured.

I was also pleased to hear a number of speakers express their concern about the rising levels of interference from non-compliant imported consumer equipment. Radio amateurs are also experiencing increasing levels of interference from electrical and electronic equipment such as solar power installations, low-cost LED lighting and many other consumer items. The WIA also argued in its submission that the ACMA needs to be adequately resourced to protect the spectrum against a rise in the radio noise-floor, from non-compliant electrical and electronic equipment, which will ultimately affect all spectrum users in some way, regardless of technology.

In such a rapidly changing environment it's not possible to predict the future, but the WIA is taking a very proactive stance in the governments spectrum review and is committed to achieving the best possible outcome for amateur radio. Roger Harrison is attending Day 2 of the conference on behalf of the WIA, but it is magazine deadline today, so that will have to wait until next month.

Phil Wait VK2ASD
President

PS. A link to the Department of Communications Spectrum Review, and the WIA's submission is in the Hot Issues section of the WIA website. The Hot Issues section also has a link to the WIA's recommendations to the ACMA concerning the upcoming "remake" of the amateur service LCD.

Editorial

Continued from page 2

Volunteer needed

As I discussed in the September and July Editorials, Ernie Walls VK3FM has resigned as Secretary of Publications Committee. Whilst we have an acting Secretary to fill in, Publications Committee is seeking a suitable and willing person to take up the role for a longer period, though perhaps not the nine years of service provided to the Committee by Ernie! Any interested person can find an outline of the tasks undertaken by the Secretary in the July 2014 Editorial. Anyone interested can contact me at *editor@wia.org.au*

In the interim, Evan Jarman VK3ANI has agreed to add the Secretary role to his existing Technical Editor portfolio. Evan has indicated that this can only be an interim measure due to other plans in the medium term future. Thank you to Evan.

Finally, I must express my thanks to Ernie for the sterling job he has done for the whole of my term as Editor. He certainly made my job bearable – without his assistance, I doubt that I would have been able to fulfil my editorial duties at the same time as holding down a full-time job as an academic. Ernie, I am sure that you will enjoy your new-found free time and the removal of the strains of publication deadlines. Good luck for the future.

Another volunteer retires from *AR*

Last month I neglected to acknowledge the efforts that have been contributed to this magazine from a stalwart from Queensland.

Mike Charteris VK4QS has contributed to our hobby in many ways, including being the VK4 correspondent for this magazine. As Mike noted in his column last month, he feels that it is time to relinquish the job. The September QTC column was his last. As Editor, I can report that arrangements are being finalised for Mike's replacement. Clubs in VK4 should listen out on the local News bulletins for details. Of course, such a person requires input from the Clubs in VK4, or they will have no material to report!

Many thanks for all your work and for your contributions Mike.

Until next month,

Cheers,

Peter VK3PF

A modelling approach to antenna construction - Part 1

Stephen Ireland VK3VM/VK3SIR

Back in February 2013 I was given the opportunity to make a brief presentation to the Eastern and Mountain District Radio Club (EMDRC) on antenna modelling and in particular the freeware package 4NEC2. Since then a number of people have asked me to share this further.

So is this article going to be full of heavy mathematics? No – there will be minimal if any mathematics. The software that I will introduce will do this for us. The first part of this article will be a revision of some theory and regulation, as this is not only important for understanding what we will be doing, but also important in educating amateurs so that holes that the ACMA have identified during the high power trial can be plugged.

Most importantly this is an attempt, via software, to understand our antennas better. It is also an attempt to get people started modelling their ideas so that they can waste less time and in particular resources on getting the most from their antenna and its installation.

Technical and legal disclaimers

As part of the review process I received a number of important comments:

'…you just cannot rely on the theoretical patterns in real life installations ... to hang your hat on that you are just asking for trouble … modelling is fine, it produces pretty pictures all based on correctly fed and sited installations. They, like first principal calculations, are highly questionable in true life amateur installations…'

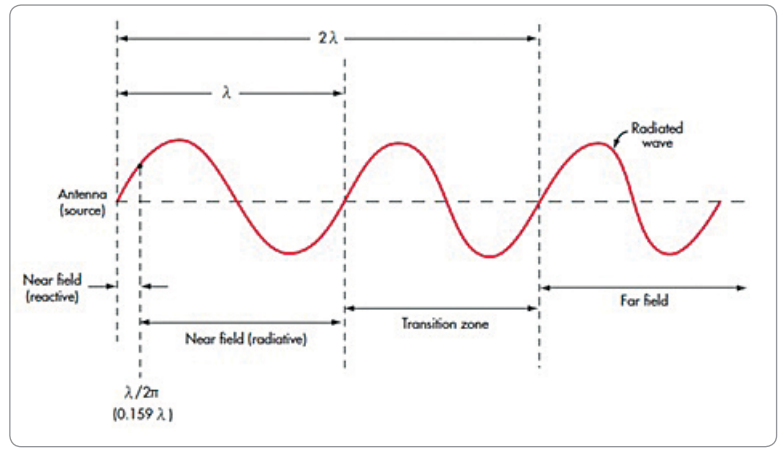

Figure 1: Simplified example of near fields and far fields. Source: http://electronicdesign.com/site-files/electronicdesign.com/files/archive/electronicdesign.com/content/content/74017/74017_f3.gif accessed 13/3/14.

'… providing a fool-proof tool is not possible. Measurement is the only sure way (if done right I may add), and that does not fit with the amateur service …'

'How can you prove compliance? Keep well within the theoretical calculations.'

This last point is critical. This article will touch on how these tools can be used for electromagnetic radiation (EMR) estimations - as that is what these tools are all about - but they will not provide any legal basis for an EMR defence. Yet this will provide cheap and inexpensive suggestions – some that have already been used by some amateurs during the high power trial (including myself) to compile and support requests.

A simple, well laid out response should go a considerable part of the way to assist any argument as long as you keep well within theoretical calculations when you are actually operating.

What is Numerical Electromagnetics Code (NEC) modelling?

The Numerical Electromagnetics Code (NEC) is a popular methodology for simulating emissions from antennas. The code is based on the 'method of moments' solution of the electric field integral equation for thin wires and the magnetic field integral equation for closed, conducting surfaces (source: *http://en.wikipedia.org/wiki/Numerical_Electromagnetics_Code* accessed 1/2/13). It simulates the electromagnetic response of antennas and metal structures (source: *http://www.nec2.org/* accessed 3/3/14).

In simplified terms, the NEC methodology breaks up an antenna into a small number of magnetic and electrical entities and mathematically attempts to model their interactions.

Should you wish to know more about NEC at a technical level then please refer to *http://www.nec2.org*

How is NEC modelling useful for amateurs?

NEC modelling lets amateurs understand how our antennas actually radiate energy. It can actually help us to predict the strength of both the radiated electric and magnetic fields *(electromagnetic radiation* or *EMR*) from our antenna. With 'electromagnetic radiation' being heavily topical, especially with regards to identified deficiencies from the recent high power trial, NEC modelling becomes a critical tool in our understanding of EMR.

Radiation propagates from an antenna in three regions:

- Near field
  - Reactive near field
  - Radiating near field
- Transition zone (sometimes omitted in many discussions)
- Far field

(after *http://www.home.agilent.com/upload/cmc_upload/All/NSI-near-far.pdf?&cc=AU&lc=eng and http://electronicdesign.com/energy/what-s-difference-between-em-near-field-and-far-field* accessed 4/3/14)

Definitions for near fields and far fields can be quite complex and imprecise so only simplistic definitions are provided here.

Near fields are generally recognised as the highly concentrated and complex electromagnetic fields that are generally found in regions less than two wavelengths in distance away from the radiating element (source: *http://electronicdesign.com/energy/what-s-difference-between-em-near-field-and-far-field* accessed 13/3/14). There are highly complex interactions due to the concentration of the electric and magnetic fields at these points. There is a very close range reactive component and a radiative component extending to the edge of the complex interactions. This radiative component can be utilised for close-contact systems such as radio frequency ID (RFID) and near-field communications (NFC) as used in proximity and credit cards and deployed in many mobile phones for close contact (NFC) communications.

Of equal importance but perhaps more 'sexy' for all amateurs is an understanding the main radiating field or *far field*. It is these fields emanating from or terminating at the electromagnetic radiator or receptor that enable our radio signals to *propagate* from one location to another. Radio waves propagate through space at the speed of light (around 300,000,000 metres per second). The electric (E) and magnetic (H) fields support and regenerate one another – meaning that as the E field peaks the other field – the H field – peaks at an angle 90 degrees from the E field. Likewise electromagnetic field strength decreases inversely as the square of the distance – $1/r^2$ (source: *http://electronicdesign.com/energy/what-s-difference-between-em-near-field-and-far-field* accessed 13/3/14).

As an example this means that as we move out one

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metre then the field strength will be one fourth of what it was at the original point of measurement.

The properties of the emissions therefore are considerably different in 'near' and 'far' field regions.

The VK3UM EMR calculator

A stronger knowledge of electromagnetic radiation (EMR) has become critical in the amateur world after the termination of the recent high power trial. Grossly simplified, from the perspective of the radio amateur the 'near field' is of considerable importance with regards to health and safety, and thus compliance with amateur LCDs, as the electromagnetic radiation is very concentrated within this region. This is not saying that exposure to 'far fields' at all possible allowed amateur levels on all available bands are safe, though.

How do we make estimates of safety? There is of course the base reference documentation 'Human Exposure to EMR: Assessment of Amateur Radio Stations for Compliance with ACA Requirements' (see link in references). Simplifying this document and overcoming limitations within this process is Doug McArthur VK3UM's EMR calculator. See Figure 2.

Doug's calculator is available at *http://www.vk3um.com/emr%20calculator.html* It is essential for all Australian amateurs, under the 'Apparatus Licence' LCD for amateurs, to ensure that we employ safe practises ensuring that members of the general public (which amateurs are classified as) are not exposed to dangerous EMR levels. Doug's calculator simplifies the mathematics for calculating safe exclusion zones from our radiating elements. More information on safe exposure levels and the regulatory basis for such levels can be found in Radiocommunications Licence Conditions (Apparatus Licence) Determination 2003 (as amended 23 May 2013) at *http://www.comlaw.gov.au/Details/F2013C00368/*

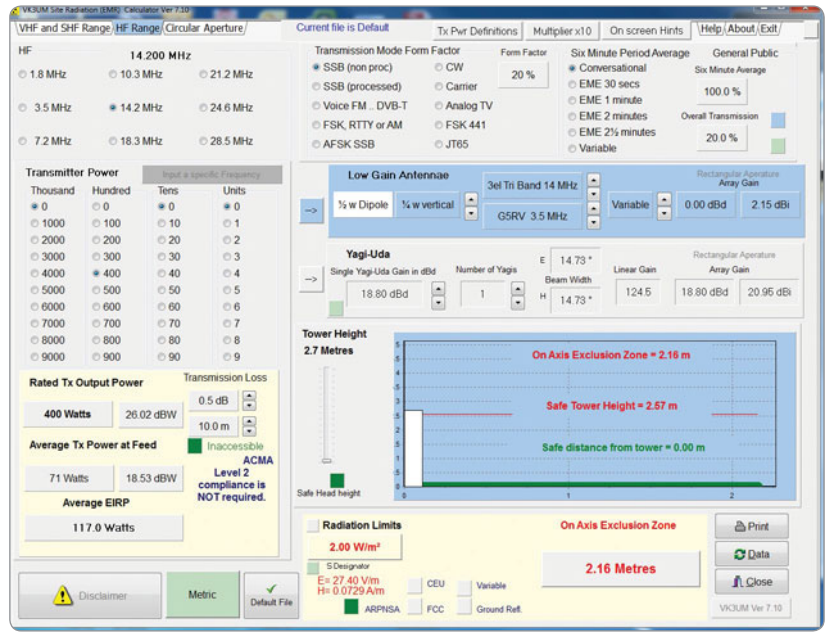

Figure 2: Sample of Doug VK3UM's EMR Calculator.

Download and in the 'ARPANSA Standard' at *http://www.arpansa.gov.au/Publications/Codes/rps3.cfm* (accessed 3/3/14).

Doug's tool concentrates on compliance. Should we require more information – such as where is the radiation actually being directed or if we want to look at ways of improving our designs - then we need to move on to NEC modelling.

NEC modelling

NEC modelling allows us to understand our antennas better by producing models based on the electromagnetic radiation leaving antennas. The electric and magnetic

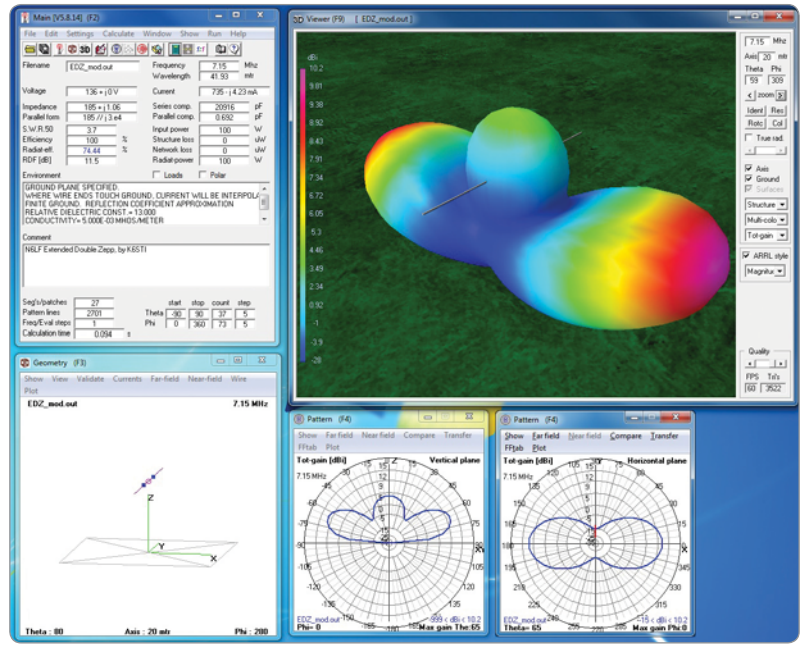

Figure 3: Example far field simulation for the N6LF double extended Zepp (modified) from 4Nec2.

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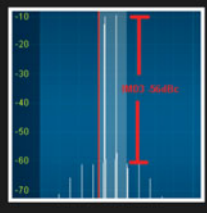

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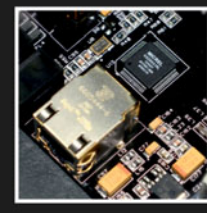

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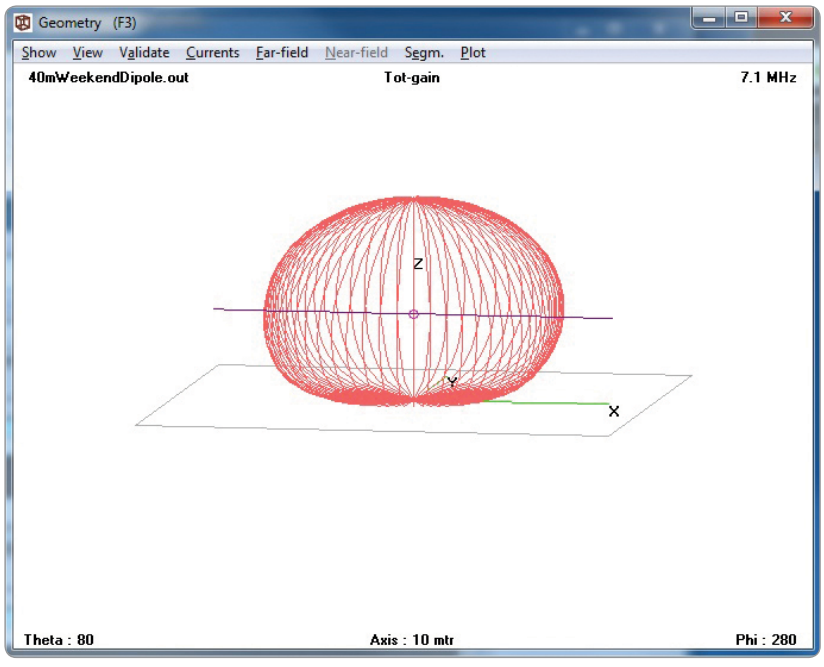


Figure 4: Wire frame model of the 40 m weekend dipole (Part B).

properties of antennas combine to shape and in some cases concentrate the way our antennas direct electromagnetic radiation. Areas of concentrated energy are termed *lobes* and contribute to *gain* that an antenna may exhibit. See Figure 3 and 4.

Figure 3 demonstrates an example, selected at random from 4Nec2's wire example models (the N6LF double extended Zepp), and Figure 4 shows a wire-frame model of the total gain for the '40 metre weekend dipole' that will be used as the practical demonstration tool later in the article.

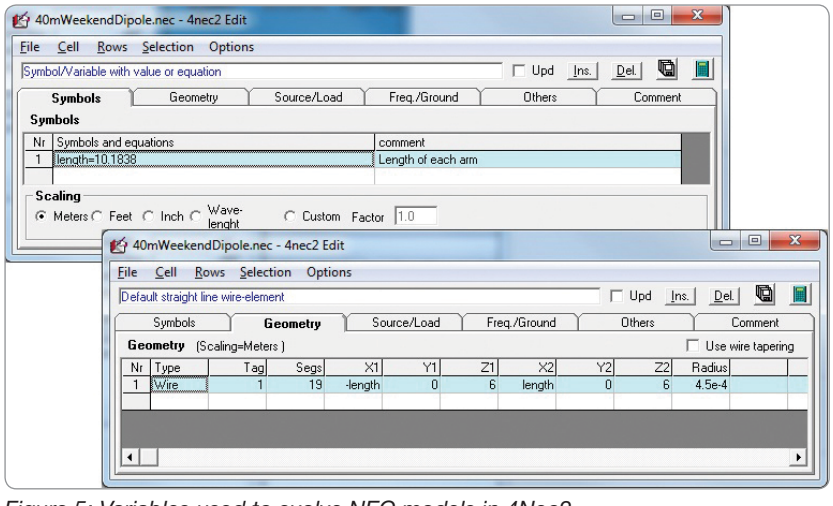
This is just some of the information that 4Nec2 can estimate for us.

These tools are not just static tools modelling static values. All modern NEC modelling tools are extensible enough to also allow us to assign figures to variables - see Figure 5. We can then use these tools to evolve and optimise our antenna dimensions for aspects such as gain and SWR by adjusting values, such as the height above ground and length of elements, stored in these variables.

From the perspective of the amateur this means that we can then use these 'evolved' figures to estimate aspects such as the length that our elements may need to be and minimum height for optimum operation.

As amateurs we seek to maximise our chances of capturing that rare DX; we therefore want to maximise our chances of not only transmitting in the most efficient way to that DX station but also receiving a clean signal from that DX station. Having knowledge of where the radiation is transmitted and received at its maximum is therefore essential.

NEC modelling is not just limited to far field modelling. It will also produce detailed near field estimations, with an example shown above in Figure 6 for the N6LF double extended Zepp. These near field estimations are an essential addition to Doug VK3UM's tool. This simulation suggests that for this antenna, over ground, there are regions of highly concentrated EM radiation below the antenna. Not only will this start you thinking about antenna efficiency but it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Use wire tapering
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Figure 5: Variables used to evolve NEC models in 4Nec2.

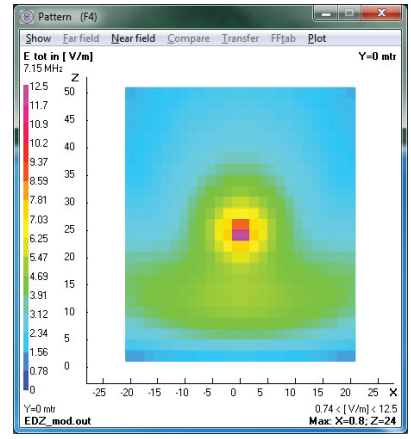

Figure 6: Near field model for N6LF double extended Zepp.

may also help you think about the position of your antennas - especially if you have children or live in a densely populated area - even if your calculations suggest that the EM that you are emitting is within safe levels according to the ARPANZA standard and the VK3UM Calculator.

Limitations of Modelling

Is NEC modelling perfect? Will putting numbers into a NEC modelling software package produce the perfect set of results that you can use to go out and precisely build an antenna? No - definitely not.

NEC Modelling is just an attempt to try to estimate what an antenna will do.

Our practical antennas are made up of an infinite number of interacting electromagnetic moments. It would in reality be impossible to model these. Likewise it would be near impossible for the amateur to 100% accurately model ground coupling and other entities that may exist within the domain of the antenna system. Yet our models will tend to hover towards end points. These evolved end points will ideally produce results within a couple of per cent of those practically observed.

The only way that true EMR compliance can be determined is by physical measurement. Yet the purchase and on-going calibration maintenance of equipment may be extremely expensive and impractical for amateurs. Amateurs therefore are forced to calculate and model.

NEC Modelling Products

There is a plethora of graphical tools based around solving the different equations to enable us to make valid predictions for our antenna systems. Some of the main products available include:

MINNINEC Pro
- MS-Windows, Mac OS X and Linux versions available
- Commercial (Starting at $US29)
- *http://www.blackcatsystems.com/software/mininec.html*

EzNEC
- MS-Windows based
- Commercial ($US99) with a free Demo program
- An early version comes with the ARRL Antenna Book.
- *http://www.eznec.com/*

MMANA-GAL
- MS-Windows Based
- Free for amateur use
- *http://hamsoft.ca/pages/mmana-gal.php*

CocoaNEC
- Macintosh OSX based
- Free
- *http://www.w7ay.net/site/Applications/cocoaNEC/index.html*

4Nec2
- MS-Windows based
- Free
- *http://home.ict.nl/~arivoors/*

The advantage of 4Nec2 is that it is MS-Windows based and is free. It has a relatively simple interface for creating, viewing, optimizing and checking 2D and 3D style antenna geometry structures. It is highly capable of generating, displaying and/or comparing near/far-field radiation patterns for both the starting and experienced antenna modeller (source: *http://home.ict.nl/~arivoors/Home.htm* (accessed 1/2/13). The remainder of this article will focus on 4Nec2.

Radiocommunications Licence Conditions (Apparatus Licence) Determination 2003 and modelling

Doug VK3UM has attempted to model most common antenna combinations – including arguably the most common of all HF antennas - the old faithful G5RV – in his EMR Calculator. For most situations Doug's EMR calculator may be adequate to demonstrate compliance specified under Radiocommunications Licence Conditions (Apparatus Licence) Determination 2003 (referred to in this as the 'LCD' - see: *http://www.comlaw.gov.au/Details/F2013C00368).*

Yet an antenna such as the double extended Zepp could not be considered to be a common antenna type and therefore it would not be reasonable to expect Doug's program to cover this. Yet sections 9, 10 and 15 of the LCD specify that the amateur operator may be requested to supply reasonable evidence suggesting that the installation meets conditions laid out in section 8 of that LCD if Level 1 is claimed, and the operator **must** have evidence available on demand if Level 2 criterion is claimed.

A near field model produced via a NEC modelling tool for your antenna may be a useful piece of evidence to assist with any compliance request. If you cannot find your antenna listed in the sample models for your NEC modelling tool then a web search engine request should yield you a data file that you can download and adapt for your installation.

At the time of writing this article, *to the best of my knowledge no modelling tools are endorsed by the ACMA* with the exception of the procedure detailed in 'Assessment of Amateur Radio Stations for Compliance with ACMA Requirements' (see References). Yet Doug's EMR Calculator and NEC modelling may provide compelling evidence to suggest that you have met requirements under the LCD.

Why has NEC modelling not taken off in amateur radio?

Amateurs try to maximise the efficiency of their transmissions and do so by employing antennas that exhibit that maximum amount of gain for their site. So how are the properties of antennas determined?

Before NEC modelling devices such as field strength meters and even simple light bulbs were used to determine areas of peak emissions

from antennas. After the on-going discussion on EMR I can foresee that most readers will now see a problem with these methodologies in this modern age.

When we read many articles we see plots from 4Nec2 and EzNEC. The legendary author LB Cebik W4RNL (SK) used EzNEC to model and validate many of his solutions. Part of the reason that NEC modelling tools are not found in the shack of all amateurs relates directly to the work that Cebik and others have performed. A little research and you can basically find these models already published. So why is there a need to reinvent the wheel? Why do many amateurs shy away from verifying their own installations? So why are NEC tools not a feature of many shacks? Why are demonstrations of such products some of the most heavily attended presentations at many radio clubs?

I feel that it primarily relates to the training resources available for these tools. Much of the support and training materials for these products are either very voluminous and/or are extremely poor. Until now tutorials and the like have been very poor. Even Arie Voors' links for 4Nec2 at *http://www.qsl.net/4nec2/tutorials.htm* are somewhat confusing to the beginner.

4Nec2 tutorials on YouTube

Luckily there are some excellent tutorials now available from Rob 'dx2hunt' on YouTube. Rob, an amateur from VK2, has kindly put together a series that can make using 4Nec2 a snap. Links to resources can be found at *http://www.youtube.com/user/dx2hunt*

The basic resources are categorised below:

Introduction
http://www.youtube.com/watch?v=S01SoDJxvmo

Tute 1: 4Nec2 User Interface
http://www.youtube.com/watch?v=bEIWUid_wio

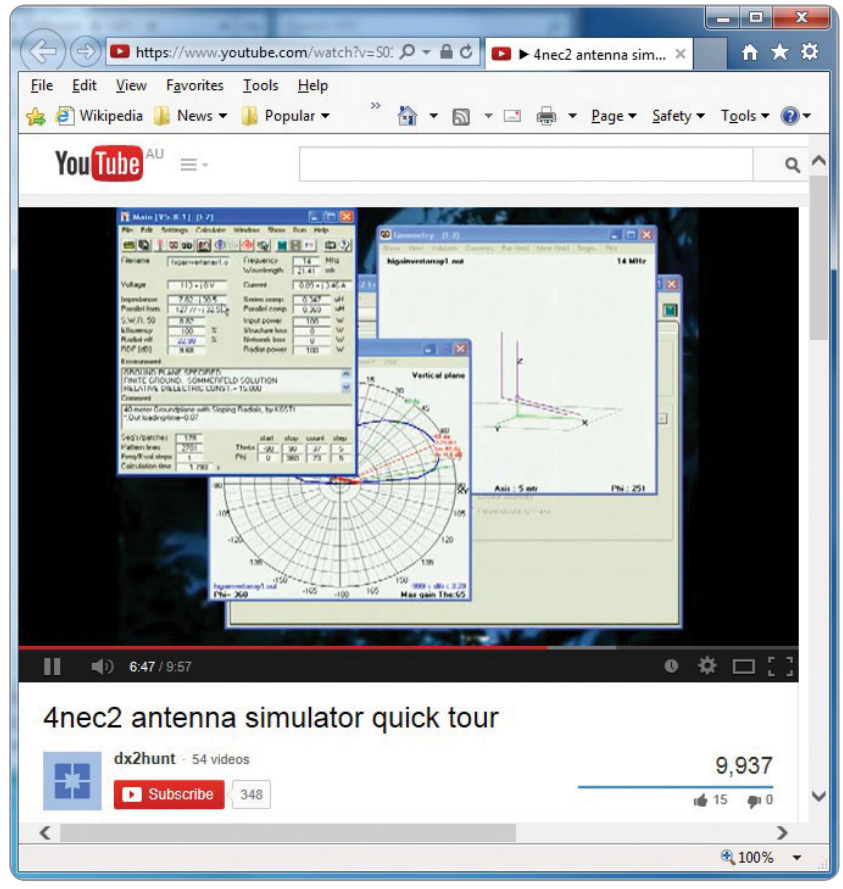

Figure 7: Sample of Rob dx2hunt's YouTube Tutorials. (Source: https://www.youtube.com/watch?v=S01SoDJxvmo&noredirect=1 accessed 5/3/14).

Tute 2: Building antennas with the Editors
http://www.youtube.com/watch?v=3AqMq0J3WBc

Tute 3: 4Nec2 optimiser and impedance matching
http://www.youtube.com/watch?v=kYy6Yur127A

At the end of this tutorial you should be primed to start modelling antennas. Yet the next two tutorials that Rob has also provided demonstrate some of the more powerful features of 4Nec2.

Tute 4: Sweep frequency display
http://www.youtube.com/watch?v=R5jUMxjJS8g

Tute 5: What if? modelling
http://www.youtube.com/watch?v=IXpPc2cKNUU

I would strongly urge every amateur to view these tutorials. As a start point you should install 4Nec2 and start and pause each of the tutorials – replicating Rob's activities at each point. Only proceed in the tutorial set when you are confident that your models match those as shown on Rob's videos.

In the opinion of this author these tutorials are extremely easy to understand, follow and therefore to replicate each task set.

Next Time

The second part of this article will document a practical implementation of this tool on a simple antenna – a dipole constructed 'on the run' for 7.1 MHz.

It is highly recommended that everyone view the links provided above before undertaking his activity.

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- 1 x Compartmentalized portfolio bag
- 1 x Operating manual

The Buddistick deluxe kit also includes:

- 1 x Vertical antenna clamp
- 1 x Additional stainless steel whip

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- 2 x Multiband loading coils and coil clips
- 1 x 7.6 m coaxial feed line with choke balun
- 1 x Black thermoplastic carrying case
- 1 x Operating manual

The Buddipole deluxe kit also includes:

- 1 x Portable 2.4 m mast and base tripod
- 1 x Rotating arm kit- change configurations
- 3 x Extra coil clips
- 1 x Additional telescopic whip
- 1 x Antenna system bag – padded nylon with shoulder strap
- 10 page modeling report

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References

Special thanks must be extended to Doug McArthur VK3UM especially with regards to comments provided on the regulatory aspects covered here.

- *http://www.youtube.com*
- *http://www.nec2.org*
- *http://en.wikipedia.org/wiki/Numerical_Electromagnetics_Code*
- *http://www.blackcatsystems.com/software/mininec.html*
- *http://www.eznec.com/*
- *http://hamsoft.ca/pages/mmanagal.php*
- *http://www.w7ay.net/site/Applications/cocoaNEC/index.html*
- *http://home.ict.nl/~arivoors/*
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- *http://www.vk3um.com/emr%20calculator.html*
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- *http://www.acma.gov.au/~/media/Radiocommunications%20Licensing%20and%20Telecommunications%20Deployment/Information/pdf/Human%20exposure%20to%20EMR%20Assessment%20of%20Amateur%20Radio%20Stations%20for%20Compliance%20with%20ACMA%20Requirements.PDF*

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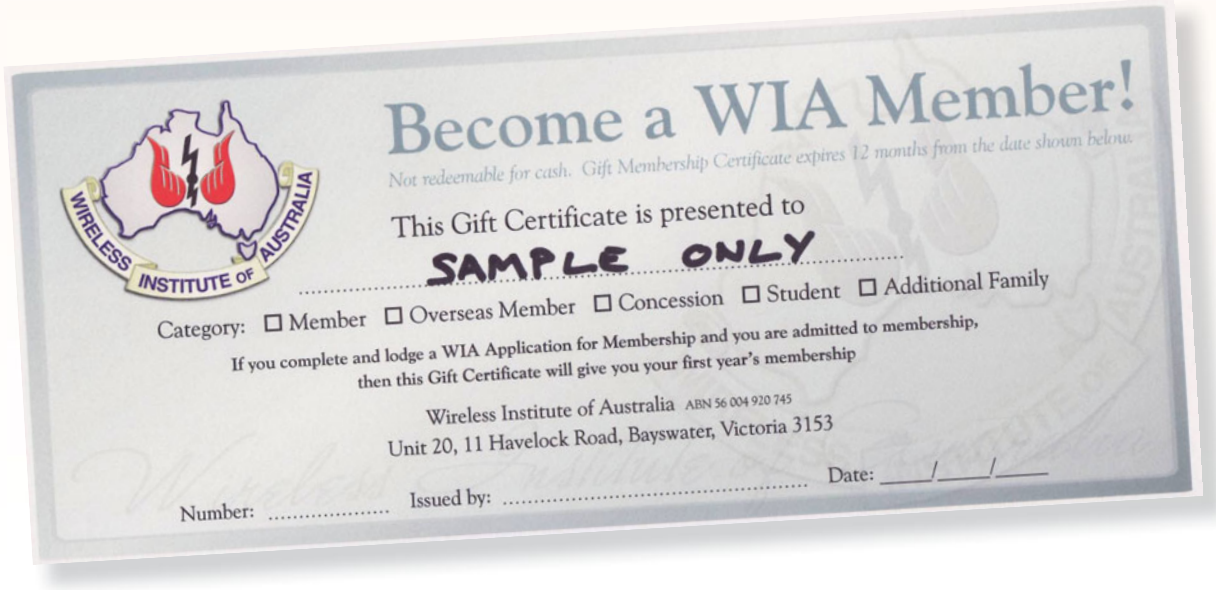
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SOTA sidelines in the Mother Country

Andrew Ryan VK3ARR

Photo 1: Narrow hedge row near Christ Cross.

Equipment

The equipment was chosen based on the likelihood of being able to work DX back to VK, which has been achieved with some success in recent months. Activators such as Mike 2E0YYY have made contacts with low power and compromised antennas at the right time of the day. The only drawback was the fact that suitcases, lightly loaded on the way over, would be brimming with souvenirs on the way back. This limited the amount of radio equipment that I was allowed to bring, which ultimately boiled down to a 'one radio only' rule. This radio was a Yaesu FT-857D.

My usual SOTA activation antenna is a linked dipole cut for 40 m/20 m/15 m/12 m, mounted on top of a seven metre squid pole. While the squid pole does collapse down to slightly more than a metre in length, it was considered to be too large for my suitcase. Instead, I took a Buddistick Deluxe package, which effectively gave me the same bands, at the expense of efficiency in getting a signal out. It would be mounted on a camera tripod.

Power for the FT-857D was supplied via a 4.2 Ah LiFePO4 battery. I would normally use an 8.4 Ah battery to give me extra capacity, but travelling with high capacity lithium batteries is difficult. I have more details on this available on my blog. Refer footnote 1 below.

The plans

The first week of our trip was largely based down in the south west of England, and we had many plans to visit areas of Devon and Cornwall. There are seven summits in the Devon and Cornwall (DC) region of the G association of SOTA, and I researched all of them on the off chance I managed to get the opportunity to activate one or more of them. Our second week would be up in the Lake District, followed by a few days in Scotland. I figured that with some careful planning, I could activate a summit in each of the England, Wales and Scottish associations.

I chose a few summits in England, firstly High Willhays and the schoolboy-humourously-named Brown Willy in the DC region, and Skiddaw, a 10 point summit towering over Keswick in the Lake District, and finally Bishop Wilton Wold in Yorkshire, where we would pass through on our return from

Scotland. In Wales, I planned to activate Wentwood (GW/SW-033), a half hour diversion into Wales on our way up to the Lake District. In Scotland, I planned on activating Arthur's Seat, which sits above Edinburgh.

In the end, I activated a few opportune summits, and had to change plans as things came up.

G/DC-005 Christ Cross

After sleeping for far too short a time, our body clocks completely messed up, we made plans on our first day to visit Totnes. Totnes is a transition town located in south east Devon, a relatively easy trip down the M5 motorway from where we were staying. Given that we were awake early, and the shops there wouldn't open by the time we arrived, I took a detour up to Christ Cross, which is about 20 minutes off the M5, west of the village of Bradninch.

I had looked at the map and read a few activator reports of this summit and they suggested the approaching roads were narrow. I'd like to disabuse anyone of the notion these are narrow. Narrow doesn't begin to describe driving down roads with hedgerows almost striking the mirrors on either side of the hire car. Mud all across the road from tractors also coated the windscreen and the car, but we arrived safely without incident, and parked at the Christ Cross crossroads, which is within the activation zone.

We walked to the summit, covered in a radio tower, but I noticed there were some people working at the tower. I headed back and set up on the opposite side of the road to the car. I spotted myself, then sat calling CQ on 20 metres for almost 20 minutes before I finally got a reply. My wife amused herself by looking out over the countryside, watching hot air balloons and the occasional 4WD go past.

After my first reply, others came out of the woodwork and I managed to qualify the summit. I moved on to 40 metres and got a total of 13 contacts before I packed up and we headed off to Totnes. With that, I had now successfully activated the G association. The only downside was the antenna falling over, which seemed innocuous at the time, but had bigger implications later in the trip.

G/DC-001 High Willhays and G/DC-002 Brown Willy

The weather on Wednesday promised to be the finest of the week, and so we decided we'd tackle High Willhays and Brown Willy. High Willhays and Brown Willy are the high points of Devon and Cornwall respectively. It took us about an hour to get to the car park at Okehampton Camps, and we started the climb.

High Willhays is located on Dartmoor and is a clear two metres

Photo 2: Rowtor with West Mill Tor behind. High Willhays is behind both.

Photo 3: An action shot on Wentwood.

taller than the more interesting Yes Tor, which had always been thought to be the higher of the two until someone actually got out with a measuring stick. We couldn't see it from the start point of the climb, but the scenery was still amazing. It is impossible to describe Dartmoor without using the words 'desolate' and 'wind-swept'. It is all that, of course, but those words hide a stark beauty that is hard to capture adequately in a photograph.

This activation, however, was cursed from the start. Having studied the map continually since I first decided on High Willhays back in Australia, I naturally took a wrong turn. The map, sitting in my pack, was checked after I finally felt we'd gone too far, which of course revealed my stupidity. This added about a kilometre and a half to the walk, which ordinarily wouldn't have bothered us, other than the fact that the jet lag really hit at that point.

We were still a kilometre from the summit when we decided to pull the plug. It may have been possible to make it, but the purpose of the trip was a holiday, and killing ourselves on day two wasn't a smart move. We withdrew back to the car via the right path. I added the summit to my list of 'one day, I must get back there' summits.

G/SC-004 Staple Hill

After the failed activation of High Willhays, I was determined to get straight back on the horse, and my birthday the next day provided an opportunity. I knew that we had to pretty much pass by Staple Hill on the way back from our sightseeing to the north, and I pulled the 'It's my birthday' card out to get to activate.

Staple Hill is a small area of woodland in Somerset, with relatively firm forest trails to the summit area, although the patches of mud near the parking area were certainly added to the pile growing in the hire car. We walked across into the activation zone, before stopping about 200 metres from the trig point, well within the surrounding woodland.

I set up the antenna, and it rapidly became clear that the antenna fall on Christ Cross had caused more problems than I knew about. The mounting plate for the tripod, which the antenna screwed into, was broken, leaving my wife to hold the antenna up while I tried hard to get four contacts. The feedline seemed to be in a strange state of repair, later diagnosed as an intermittent break somewhere in the cable. However, I managed to sort most of it out, and to get on to 20 metres, where I qualified the summit with six contacts.

I had planned working 40 metres as well, but as I changed the counterpoise, the heavens opened up, complete with hail, and with a 6.30 pm dinner appointment in Axminster and a qualified summit, we decided it was time to make

Photo 4: A view along the Skiddaw highway.

tracks. The shower was passing, and we drove home in sunshine, but I'd gotten back on the horse and survived.

GW/SW-033 Wentwood

After a week in the south west, we headed north to the Lake District. The usual approach would have been to go up the M5, but I noticed that if we took a diversion up into Wales, we could have a nice woodland walk at the expense of an extra 30 minutes or so driving. Instead, by travelling roughly parallel to the M5 through Wales, I could activate Wentwood and get a Welsh summit in the bag.

I wrote down instructions courtesy of The Online Mapping Tool Co-located with a Popular Search Engine, and we headed off. The only surprise was the size of the toll to cross the Severn Bridge into Wales, before, unsurprisingly, I took a wrong turn somewhere and ended up somewhat lost. I bit the bullet and fired up data roaming to find out where I was, but a kind gentleman saw I was lost, and pointed me in the right direction, and we ended up at the correct spot about ten minutes later.

A casual stroll through woodlands turned into a muddy walk through a Tunguska-style wasteland, as the pine forest on the summit had been recently felled. I had practiced a remedy to the issues around the tripod that were largely successful, using the included clamp from the Buddistick to clamp onto the tripod head. Although this worked, the antenna was precarious and hard to tune on 40 metres.

I managed to work Don G0RQL in Devon, but missed out on a summit to summit opportunity, and eventually gave up on 40 metres. The move to 20 metres was much more productive, and the summit was qualified with 11 contacts in total. My wife headed back to the car as I packed up and ticked off another new association courtesy of Wales.

G/LD-004 Skiddaw

Skiddaw was the ultimate goal. A 10 pointer in the Lake District, considered the easiest of the 10 pointers in England to activate. My first planned day to tackle Skiddaw presented a mountain covered in cloud, something I wasn't willing to deal with, which left me the last day in Keswick before we headed off to Edinburgh for the next phase of our holiday.

My wife wisely declined the joy of climbing Skiddaw, which looked steep on the map, and steeper to the eye. I left her instead in Keswick with a credit card and made my way up to the Latrigg car park, the final road having the most superfluous speed humps in history – the humps were the smoothest part of the road!

I set off early enough, with the car park fairly empty, and began my ascent. The first stage is relatively straightforward, but that bit lasts all of a few hundred metres as the climb begins in earnest. I passed a gentleman who had allocated the entire day for his ascent: my three hours, including activation time, was

possibly foolhardy; I pushed on past him nonetheless.

As I tackled more of the ascent, I started to wonder if a whole day was being aggressive in tackling the mountain. I'd tackled ascents that looked like this on the map before, so what was different about this one? Oh, right, the contours were 20 metre contours, rather than the more common 10 metre contours we tend to see in Australia. Twice as steep. I decided my best option, given I have no ability to walk slowly, was to proceed up the mountain in periodic bursts of activity followed by rest. By using this 'pulse width modulation' method, I managed to make relatively good time, stopping at the base of Skiddaw Little Man for a longer break to catch my breath, as some cloud closed in around the summit.

This section marked the start of the flattest part of the walk proper, as the path went behind the summit of Skiddaw Little Man (a subsidiary peak of Skiddaw) before the final ascent up to the Skiddaw summit. This part of the track is in the lee side of Skiddaw and despite it being well into spring, snow still lay in depressions that saw little sun.

Being relatively flat, I covered the kilometre rapidly, and I finished the last ascent without a break with the goal and destination in sight. It was in sight, at least, until the final five minutes when the sun went behind some high clouds and the drop in temperature caused the summit to close in with clouds. The track was easy to follow, and by luck, when I reached the summit trig point, it had cleared again.

The summit. The view was phenomenal. I could see Bassenthwaite and Derwentwater, down into Keswick, where my credit history was under threat, and behind me across to Blencathra and Helvellyn, SOTA summits to the south that could also go into the 'next time' bucket. The only downside was the fact the summit was unprotected from the strong wind that blew in, keeping the temperature to barely above freezing.

I set up in behind a rock shelter, slightly out of the way, and strung out a counterpoise across the top of the rock shelter and set the Buddistick up with the tripod jammed in between some of the rocks. At this point, another walker came up asking if I was using two metres as he'd done some SOTA work in the past. We chatted for a bit, before I got on 20 metres instead. This was my only encounter with a fellow ham while in the UK, but he wasn't the only one curious about what I was doing.

I had my usual problems with the feedline before finding the right way to sit and the right incantation to get everything to work. My first contact was ground wave from the nearby town of Penrith, before I worked into eastern Europe and Germany. My contact with DJ5AV was a sign I wasn't at 100% functionality either: I managed a 5/8 report despite speaking into the wrong side of the microphone!

With my first 10 pointer qualified with six contacts, I thought I'd try 40 metres again, but at this point the wind decided to pick up, and my antenna looked certain that it wanted to head down towards Keswick via the most direct route. In addition, the length of the counterpoise for 40 metres would

Photo 5: Skiddaw summit – in spring, thank goodness!

Photo 6: Blencathra panorama.

need me to operate outside of the protection of the rock shelter if I wasn't going to cause a hazard on the summit. That prospect filled me with no joy, and as I'd last seen my wife eyeing off a pair of ceramic badgers worth 80 pounds each, I decided the prudent option was to retreat down the mountain while I was still solvent.

The path down was every bit as steep as the path up. Obviously. My calves, who'd suffered on the way up, got to smirk at my quadriceps, who screamed in protest. I used the camera tripod as a walking stick which certainly helped, although I did bend one of the thinner lower sections. I decided halfway down that this was less of a walk down a mountain so much as a semi-controlled fall, and that perhaps the crazy people I'd seen running down it during my ascent may not have actually voluntarily chosen that option.

In any case, I made it down without major incident and headed back into Keswick to discover there were no major financial incidents either. The only drawback was that had I had a two metre antenna, I might have got a summit to summit contact.

GM/SS-276 Moncreiffe Hill

My initial plan to activate in Scotland was to look at Arthur's Seat near Edinburgh, but in a quick look at the SOTAwatch website I'd missed the fact that I needed to organise permission to operate there beforehand. Instead, I spotted a summit up near Perth called Moncreiffe Hill that looked to be a 20 minute easy walk in. After sightseeing in the morning, we parked in the north car park and I walked up. My wife decided to stay in the car.

Moncreiffe Hill is an Iron Age fort structure consisting of two actual summits. The first is Moncreiffe Hill itself and the second, slightly higher, summit is Moredun Top, which is the correct summit for SOTA purposes. These two forts would have had complete vision from south east through to the west and north.

It was indeed about a 20 minute walk up, and at the summit top I was completely cloud bound. The M90 motorway is less than a kilometre away to the west, but I could see none of it; the only sign it was there was the car noise. I set up on the southern edge of the summit, basically on the side of a steep hill, and decided to try 40 metres first.

Today, 40 metres was working well, feedline problems seemingly gone, and I worked a pileup the likes of which I hadn't seen in a long time. I filled plenty of pages, and managed a summit to summit with Don M0HCU, my first successful chase in the UK, on G/WB-013 Garway Hill. I lost track of time, and came back down to an irate wife, who quite rightly was annoyed I'd been up there about an hour. Karma ultimately got me, as I ended up with blisters on my feet that were infected by the time we were in Japan, requiring medical attention.

G/TW-004 Bishop Wilton Wold

The final summit attempted was Bishop Wilton Wold, the high point along the A166 in east Yorkshire, near the town of Wetwang. We were staying near here as my wife has a family connection in the area, and so we passed over the summit on the way to our hotel. I was not permitted to try to activate it on the first passage.

The next day, while waiting for things to open, I was allowed to try to activate the summit. There is a parking layby at the summit, and I parked here and set up near the trig point in light drizzle. Bishop Wilton Wold is interesting in that it is fairly gentle, making for an activation zone that is 17 kilometres around, but despite that I am not aware of any attempts to activate away from this small area while still in the activation zone.

I got onto 20 metres in the middle of a contest, and managed just one contact, into Switzerland, before I gave up and decided to try 40 metres. A large metal fence at the top of the summit affected tuning of the antenna, but the main problem on this occasion was again the contest and I was continually struggling to find a clear frequency. I worked Don G0RQL, and tried to

work Mark M0MDA who couldn't quite hear me above his local QRM, despite him being a clear 5/8 to me.

With two contacts and no prospect of any more on 40 metres, I tried to move to 12 metres, where I found a clear frequency, spotted and called CQ. While waiting for a response, a deaf UA station came up over the top of me. I was desperate for a contact by that stage and tried to return to him, but got nothing, so I moved down a bit and CQ'd a little longer. I got nothing except wetter and wetter, and when the antenna fell down in the wind, I threw my toys out of the cot and packed up. One point is simply not worth that sort of hassle.

I stormed back to the car, threw the gear in the back and we went off to do some sightseeing. Fate would decree that we had to go back over the summit again on our way back to London. This meant I was on the summit three times, for two contacts. Not my finest effort, though, sadly, also not my worst.

Home again

With that, my UK SOTA adventure was over. I successfully activated in three different associations (G, GW and GM), and managed to work a number of new chasers and countries. I wasn't successful in making a VK/UK contact, although a number of local chasers did listen out for me and reported hearing me, but too low down. Next time, I will take the linked dipole and squid pole.

Photo 7: A view on Moncreiffe Hill.

In short, it was a highly enjoyable component of the holiday, and we will spend more time in the Lake District next time we go, which has the advantage of being closer to higher point summits!

Footnote

http://vk3arr.wordpress.com/2014/04/14/travelling-with-lithium-batteries/

VHF UHF band plans – are they working?

Grant Willis VK5GR

Editor's Note: This series of three articles represent the personal opinion of the author and not the position of the WIA. I am sure that these contributions will be taken into consideration by the committee approved by the WIA Board to consider the revision of the Band Plans. However, the committee will make its final recommendations to the Board, who will approve release of the final plans.

Part 1 – Designing a band plan

Introduction

The amateur service has access to some very valuable spectrum in the VHF and UHF bands. It is also a very diverse hobby that can use spectrum in a wide variety of ways. This can lead to conflicts between incompatible operating modes. To solve this, the amateur service globally has adopted the concept of band planning, where the available spectrum is divided into sections where more compatible operating modes can co-habit with each other. These band plans are one of the fundamental ways that amateur operators self-regulate their spectrum access, ensuring that everyone shares the resource harmoniously.

Recently in Australia numerous band planning challenges have arisen that have been addressed with only mixed success. In some cases it would appear that the solutions actually failed to address the problem at hand. In this three part series, I will set out what I believe it takes to define a band plan, what challenges exist within the existing plans and offer some possible solutions for our two metre and 70 cm bands.

VHF-UHF band planning considerations

There are many things to consider when designing a band plan, particularly on the VHF-UHF bands. Amateur activity on these bands has some unique requirements, including fixed repeaters, links and beacons mixed with internationally coordinated satellite and EME segments. The UHF bands also are shared with other services and have segments encumbered with other uses (for example, Low Interference Potential Devices [LIPDs]) which have proven to be incompatible with some types of amateur activity.

So, let's start by laying out what all of the constraints are.

Weak signal narrowband modes

Weak signal narrowband modes are categories by activities such as SSB, CW and many of the newer digital narrowband modes that are heavily reliant on signal processing.

Narrowband signal modes are most commonly used when attempting communications via tropospheric ducting, sporadic E ionospheric propagation, aircraft enhancement, or Earth-Moon-Earth (EME) communications. One key requirement when using these modes is to have very sensitive receivers and very low noise environments. This key characteristic means that weak signal work and high powered FM transmissions are poor neighbours, as the FM stations can overload or desensitize the receivers used by the weak signal operators.

So, one key constraint faced by band planners is to separate out weak signal modes from local medium to high powered wideband modes (such as FM voice or packet radio).

Satellite operation

The amateur satellite service is unique in that it is one of the few VHF/UHF band segments where there is a common allocation worldwide. Often satellite communications also fall into the weak signal category complicating matters further.

Since these are common international segments, and other amateur activity in the band would lead to interference that could be relayed via the satellites, one immovable constraint for band planners is always to reserve that spectrum for the amateur satellite service.

It is also worth noting that while various non-standard amateur satellite channels have appeared over the years, most are no longer active. However, some are still listed in the WIA band plans. For example, once the NASA shuttle program ended, reservations on 144.950/145.550 were no longer required. It is a good example of periodic band plan maintenance being required.

Repeaters

Repeaters pose a very significant challenge for band planning. Most normal amateur activity undertaken by individual stations occupies a given channel only for short periods of time. Repeaters, however, are active 24 hours a day, and hence require more careful planning to avoid long term interference.

They are usually very well sited too, having much greater coverage than the average amateur home or mobile station. This makes them quite popular with many operators in the amateur service leading to them taking over the role of call channel in an area.

Considering these characteristics, the following parameters need to be taken into account both when designing a band plan and frequency planning repeater services:

- Capacity – how many repeater channels are required within a region – a question which depends on the number of repeaters required to provide coverage, or access to different modulation modes or additional channel capacity because of the population density of amateurs in a repeater's service area.
- Frequency reuse – depends on the capacity question, as once the number of repeaters desired is understood, then given a minimum desired co-channel distance it becomes possible to calculate channel capacity needed in an area.
- Available equipment – not all amateur rigs have access to the entire band (for example many 70 cm FM radios sold in Australia over the past 30 years can't operate outside of 430-440 MHz).
- Non-amateur spectrum users - site and area frequency coordination with non-amateur services such as the paging network on 148-150 MHz or LIPDs on 433.05-434.79 MHz.
- Multi-repeater co-location planning - frequency coordination with other co-sited amateur repeater systems (for example, packet repeaters co-located with voice repeaters).
- Individual amateur station receiver capabilities – includes mitigating problems with interleaving digital and analogue repeater channels as well as problems with an end user's transmitter 3rd harmonic when on two metres appearing within the 70 cm repeater band output channels).
- Repeater type and operating mode compatibility - different modes have different requirements and can tolerate interference in different ways.

All of these constraints complicate band planning. A good band plan design must consider not only the repeater site constructors, but also the end user transmitters and receivers (the other half of the communications channel).

Recently, the traditional repeater planning has come under further pressure from the introduction of new duplex repeater modes. The rise of D*STAR and P25 repeaters in amongst the existing two metre and 70 cm analogue FM voice repeaters is a significant challenge as they have an equal right to access to a channel. However in some regions, available channel space has already been exhausted.

Beacons

Beacons also pose challenges for band planning, but in different ways. Propagation beacons are the most common and useful type in service today. To maximize the chances of using one to detect when DX conditions exist, their individual channels should not be re-used as far as possible across the continent. The fact that they also transmit 24 hours a day means they take up exclusive use of the channel. Therefore the number of propagation beacons and their channel allocations needs to be carefully managed.

The other category of beacons, namely 'information' beacons or CW training beacons should be resisted, especially considering in this modern age how most people would normally access that information or training. These today are a very inefficient use of spectrum. Having said that, a small number continue to operate around the country and at least as a legacy use, should be allowed to continue. Allocating band segments to support that use, however, should be avoided as it just locks up use of the band for something that is unlikely to have new services added to it.

Experimental and general use

At the core of the amateur service is its experimental nature. Those experiments can be ground breaking research or can be simply based around an individual's self-education through experimentation. Band planning must not lose sight of this, and should always seek to minimise the amount of spectrum it encumbers to the exclusion of free creativity. Segments should always be maintained in the plans to support the weird, unusual and 'uncoordinated/unconstrained' activities within the hobby.

Those undertaking such experimentation also have a responsibility to do so in a way that prevents interference to other users. That fundamental responsibility is one that needs to be maintained upper-most in all amateur operators' minds whenever they activate a transmitter.

Artificial spectrum scarcity

One consequence of band plan design can be the accidental creation of unintended spectrum scarcity. With a hobby as diverse as amateur radio, the temptation to assign each individual activity its own channel on a permanent basis needs to be avoided.

A user interest test needs to be applied where such channels are only allocated once a large proportion of the amateur community using the band seeks access to a particular mode at the same time, for example the explosion of AX.25 data in the 1990s. Allocation of a channel or channels for emerging special interests or uses that have characteristics more in common with existing activity allocations should be avoided.

Existing special uses and activities

Looking at the issue of artificial spectrum scarcity further, one area of the existing band plans that requires specific attention is the number of channel allocations to specific activities or modes. These assignments need to be reviewed and should be dropped in many cases as they are not so much based on current activity levels, but

rather are based on transient trends or predicted but unrealized future activity. Examples of this are:

- *APRS* – one channel nationally per band with reasonable quantities of users in each area – due to the popularity this is an example of a special use designator that has merit - it is used over wide areas across the populated parts of the continent.
- *ARDF* – used by a small community in each area - however this has been internationally coordinated and so its merit comes from the international aspects of its use.
- National calling channels – depends on the operating mode. Weak signal modes rely on these to establish contacts. Meanwhile, wideband local modes, like FM voice, tend to not use these channels where repeater systems have been established. In areas where repeaters don't exist, there generally isn't the amateur population density either that sees anyone listening anyway! Allocating one channel to weak signal and one to wideband voice is not unreasonable. Allocating lots of secondary ones appears wasteful.
- Special use call channels, for example, ATV liaison or WICEN – these can have a use and such activity should be given preferential access to that channel, but it should be clearly understood that those activities do not own the channel, and that they are not allocated to that channel to the exclusion of all other activity. If that caveat is not followed, then allocation of such special interest channels just leads to unnecessary spectrum scarcity when no one is participating in the activity in a given area.
- RTTY, EchoLink and simplex IRLP are other examples of activities that perhaps no longer warrant having dedicated band plan channels. If there really is a strong interest in such systems, then perhaps allocate some 'automated systems primary' channels and leave it at that, allowing unmanned operations to occur in a particular band segment, while keeping it away from other activity.

Overall, the approach with special use channel allocations therefore needs to be taken with care. The temptation to allocate channels to special interest groups should generally be resisted for all but the most popular operating modes.

Non-amateur activity within amateur bands and the loss of access to spectrum

This next consideration is one of the key reasons that the existing 70 cm band plan is now failing. The introduction of Class Licensed (not so) Low Interference Potential Devices into 433.050-434.790 MHz by the ACMA has brought with it major interference impacts to the 70 cm repeater services, which the ACMA has forced the amateur service to wear. More recently, the loss of 420-430 MHz has compounded pressure on the amateur service in this band. This forces us to reconsider how the available spectrum is used.

The fact that amateur service has no primary or exclusive amateur spectrum allocations in the UHF bands at all means that the amateur service must maintain its frequency agility in those bands. Only by doing this will we be able to maximize the range of possible amateur activities the bands can support in amongst our commercial, defence and class licensed neighbours. Taking this into account when developing band plans means that the need to consider migration of amateur fixed services in planning as well as keeping as open a mind on potential solutions is mandatory.

International trends

When formulating a band plan, the best starting point is to review the International Amateur Radio Union's recommendations. Several IARU regions have guidelines set down that at least specify global band segments even on VHF-UHF bands which need to be maintained in Australia as well.

It is also worth investigating how other countries have arranged their band plans, to see what ideas can be obtained. The main difficulty is that no single solution exists that works in all locations.

Every country has different allocations, particularly on the UHF bands:

- Region 1 generally only has two MHz of bandwidth on two metres (144-146) and perhaps 7-8 MHz on 70 cm (430-438 MHz) if they have a 70 cm band at all. Region 2 (at least North America) has band allocations more aligned to Australia's (144-148 MHz and 430-450 MHz).
- Region 2 and in particular the USA and Canada have taken a different approach particularly on 70 cm, primarily since their original ATV channels only needed six MHz of bandwidth (NTSC Analogue TV) versus Australia's seven MHz (PAL analogue TV). This led them to placing their FM voice repeaters above 440 MHz, while in Australia and New Zealand we straddled the satellite band.
- Region 3 is a mixed lot, with some countries having the full 144-148 MHz band and others only 144-146 MHz (if any access at all!). 70 cm is similarly mixed with allocations as narrow as 434-438 MHz (India) or more commonly 430-440 MHz. Not all countries allow repeaters on all bands (repeaters on two metres in Japan are not permitted) although where they are permitted they commonly use five MHz offset.

When you investigate what other nations have allocated within their band plans, you find an even wider variety of solutions for consideration. For example, repeater offsets on 70 cm vary considerably across the world, with parts of Europe using 1.6 MHz (UK and Germany) or 7.6 MHz

(UK, France). Five MHz is standard in the USA and Canada but all of their repeaters are above 440 MHz and their ATV channels are narrower than in Region 3 (NTSC vs PAL). Trying to pick a 'standard' from all this that is applicable to available spectrum in Australia is very difficult indeed.

Whether an offset is +ve or –ve also is non-standard, even when you look at our New Zealand neighbours. They have worked around the LIPD problem by implementing +5 MHz offset solutions. The UK use a +ve offset on 70 cm while the USA is a mix of +ve and –ve split. In short, particularly when it comes to repeater spectrum, there is really no true 'standard' that can be followed.

Domestic commercial trends

An additional area where you may turn to seek inspiration is the commercial land mobile communications world in Australia.

Here you also find a range of standards with mixed or no applicability to the available amateur spectrum on offer. Commercial VHF operations use 4.6 MHz offset (compared to the amateur service 600 kHz). Commercial UHF uses one of 9.45 MHz, 10 MHz or 5.2 MHz depending which segment of the 400-520 MHz band you are in, with a small number of seven MHz offset allocations also in use.

When evaluating these in an amateur service context, you find a variety of outcomes in terms of capacity and implementability when also considering the other fixed band constraints amateurs have, particularly on UHF.

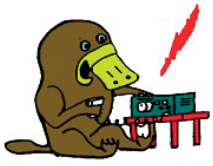
Incumbent use

The final issue that must be considered when rearranging a band plan is what should you do with existing fixed amateur stations when they operate fine today on channels that will no longer be allocated in the future. In some cases you also need to deal with home stations that perhaps use crystal locked equipment that were fine on an old band plan but are no longer appropriate in the new paradigm.

Here, the general policy needs to be one of ceasing new system assignments, and allowing the old ones to remain as long as possible/necessary. Where allowing an old legacy system to continue on a given channel becomes impractical, then various means need to be considered for how the problem can be addressed collaboratively and respectfully by both the old and new spectrum users. This may include providing help retuning radios and potentially financial support/assistance to get systems relicensed.

Next month

All of these requirements combined make designing a band plan a tricky task. Next month, I will tackle the first problem area, the Australian two metre band plan. I will set out the problems being faced and provide some recommended solutions for consideration based on applying the principles outlined here.



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Making printed circuit boards

Kevin B G Luxford VK3DAP/ZL2DAP

I have for a long time looked at printed circuit board templates published in the ARRL handbook and other publications and wished that I had the skills to be able to make them. I had made some simple boards for a high voltage rectifier for use in a power supply for a transmitter using a 6146 tube as a final Class C amplifier. The method used was fairly crude, painting the simple pattern on to FR4 single sided board with black bituminous paint, etching in ferric chloride solution, washing the board in water, then removing the bituminous paint with, I think, kerosene, or was it mineral turps – I forget.

While this method works for simple boards, it is not convenient for anything requiring closely spaced tracks, such as ICs.

When a young army cadet in New Zealand, I had the opportunity to operate the iconic NZ Army ZC1 MKII transmitter/receiver as base control with Wireless Sets No 48 being used for out stations. The love of the ZC1 has remained with me ever since. My amateur mentor based his HF activities on a ZC1, like many NZ hams in the immediate post WWII period who used ZC1s because the NZ government made surplus sets available to the ham community for the very reasonable price of £20. It has been said that this is probably the reason for the high numbers of hams/1000 members of the general population.

A few years ago, while working at Monash University, a Kiwi ham offered his ZC1 to me, as he was busy restoring a valuable Atwater Kent receiver. I arranged, and paid, for the set to be freighted by a Qantas subsidiary and stipulated that when it arrived I would drive out to Tullamarine, pick it up and process it through Customs. However, I received a

The ZC1 MKII unit.

communication from a Customs Agent to the effect that the set had arrived in Australia, and that they had processed it through Customs and were in process of delivering it to me at Monash. Oh, and would I please pay their charges of $253.00!

Now the ZC1, while described as portable, is not something that one could easily throw across the room. I went down to our department office and told the women there that this 'parcel' would be arriving soon, and that no-one was to attempt to carry it to my office, but to call me and I would pick it up. Having picked it up and put it on my desk, a colleague, originally from the UK, came in to see me, saw the ZC1 on my desk, recognised it, and told me an interesting story of how the NZ government had given or sold a number of these to the UK government, and some had been placed in government departments. One in particular had been mounted in the back of a police four wheel drive. However, with its batteries and ancillary gear, it was so heavy that it unbalanced the suspension and made the steering difficult. The problem was solved by casting a block of concrete of the same mass and installing that in the opposite corner.

The ZC1 runs off a 12 volt car battery. In the case of the MKII set, the power supply is driven by a transformer and a synchronous vibrator. When the vibrator is properly tuned, this is a very efficient setup. However, over time, the vibrator comes out of tune, and many hams lack the skill to set it up properly. Further, the rubber seals tend to create a vapour which affects the contacts, and to liquefy into an unpleasant goo. Hence many NZ hams look to replace the ZC1 power supply with a home brew mains operated supply, or to replace the synchronous vibrator with silicon diodes and an inverter circuit using something like 2N3055 silicon transistors.

I often scan the internet to see if there is anything new on the ZC1, and I was delighted to come across an article by Dr Hugo Holden, an opthalmologist in Queensland, who is an inventor and an able restorer of radios. Being originally from New Zealand, he has a very keen interest in, and great respect for the ingenuity of design, of the ZC1. He has looked at the problems of the synchronous vibrator power supply and published a paper, *http://worldphaco.com/uploads/ZC1_MK2_POWER_SUPPLIES.pdf* wherein he describes

in great detail a procedure for resurrecting old vibrators and tuning them for best results, discusses the inadequacies of many of the published inverter designs, and offers alternative designs, one based upon germanium power transistors driven by a transformer, and another based upon MOSFETs. He also includes methods for obtaining inputs to a digital frequency counter without butchering the front panel, how to connect the ZC1 to a 50 Ω coax transmission line, and a loudspeaker alternative to the old 22 Ω headphones.

His article includes PCB patterns for the MOSFET design. This re-aroused interest in making PCBs. A scour of the internet revealed methods for making PCBs with the aid of a laser printer. Having a laser printer, this method was tried, only to end in failure. It appears that my laser printer, a Brother, uses a toner which does not easily transfer to PCB material and ordinary printer paper contains fibres which get embedded in the toner and tend to ruin the pattern. Using photo printing paper also resulted in failure. Further research found an article from Ahmad Abouch of Ultrakeet Australia wherein he describes modifications to an inexpensive Lowell laminator from Officeworks. Ahmad's article is especially useful, for he had experimented with many laminators and laser printers available on the Australian market. The modifications to the Lowell include changing the thermal fuse to one of a higher temperature rating and to change one of the thermostats to one having a 170° C operating temperature. The source of the additional parts and the mods are fully described in *https://ultrakeet.com.au/write-ups/superFuserV2*

Realising that the Brother printer would not do the job, an $89 Samsung mono-laser printer was purchased. Instead of using photopaper, dextrin coated PCB toner transfer paper and green TRF foil were also obtained. Dr. Holden's PCB pattern was printed on ordinary paper and the magnification adjusted until the correct size was obtained. A sheet of PCB toner transfer paper (correct side up, read the instructions) was put into the printer and the pattern printed. The pattern was cut from the toner transfer paper with a generous leading edge which was stuck to the underside of the FR4 PCB with Scotch blue masking tape. The Lowell laminator was powered up and allowed to get to operating temperature. Keeping the free end of the toner transfer paper taut, the leading edge of the PCB was fed into the laminator. It slowly travelled through the machine. It was then placed in a sink of warm water. After about five minutes, the dextrin coating dissolved and the paper cleanly floated free, leaving the toner image on the PCB. The board was washed and dried gently to ensure that no dextrin was left.

As the toner image on the board is porous, the green TRF foil was cut large enough to cover the pattern and again with a leading edge stuck to the underside of the board with the blue Scotch masking tape. Keeping the foil taut and free of wrinkles, the board was fed again through the laminator. On its exit, the foil was lifted off, leaving the toner pattern sealed with green foil. The board was put into a photographic dish (polypropylene, not metal) and covered with ferric chloride solution. The dish was gently rocked until the etching process was complete. The board was washed in water and dried, placed in another photographic dish and liquid tin poured over it. After five minutes, the tinning process was complete, the liquid tin poured back into its bottle, the PCB washed and dried, and the result was a perfect, tinned PCB ready for drilling and parts population.

This is a brief description of the method which now enables the easy production of perfect PCBs. However it is incumbent upon me to make a few comments on the process. Firstly, ferric chloride which has been used to etch copper sided PCBs is extremely harmful to the environment, and spent solution MUST NOT be poured down the sewer or the storm water drains or poured out on to the soil. Contact your nearest hazardous waste disposal unit (local government will have details). Secondly, ferric chloride stains almost everything. Wear old clothing and use rubber gloves. When machining or drilling the boards, wear eye protection and a mask over the nose and mouth as fibreglass dust is really not good for you. The liquid tinning solution is also toxic and must be handled carefully.

I used a well-known brand PCB toner transfer paper from an Australian distributor with an eBay site, however dextrin coated paper is also available from Hong Kong and mainland China sources via the internet for much lower prices; however, nothing is known of the quality of these products. There is also an internet site which contains instructions for making one's own dextrin coated paper from roasted corn starch.

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Gil Miles' letter - Gilbert Thomas Miles, RAAF Service No. 369, A3II, VK2KI

Peter Wolfenden VK3RV

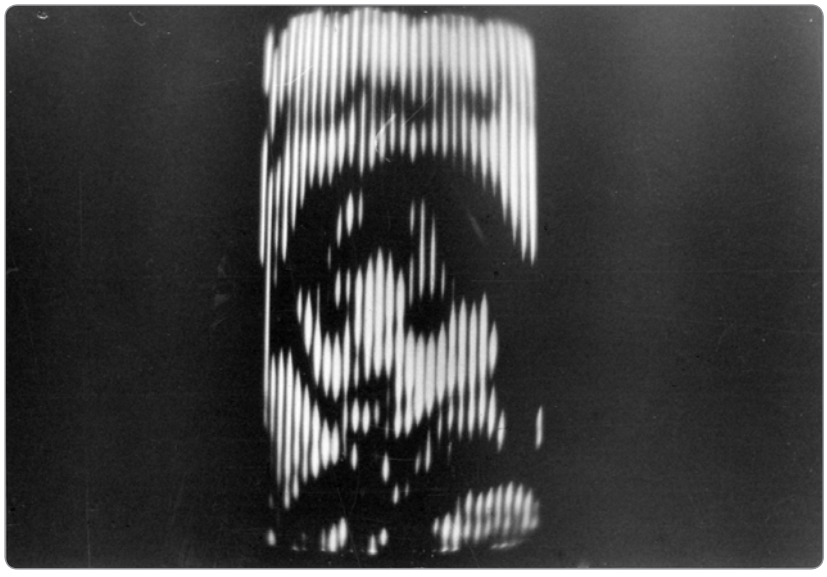


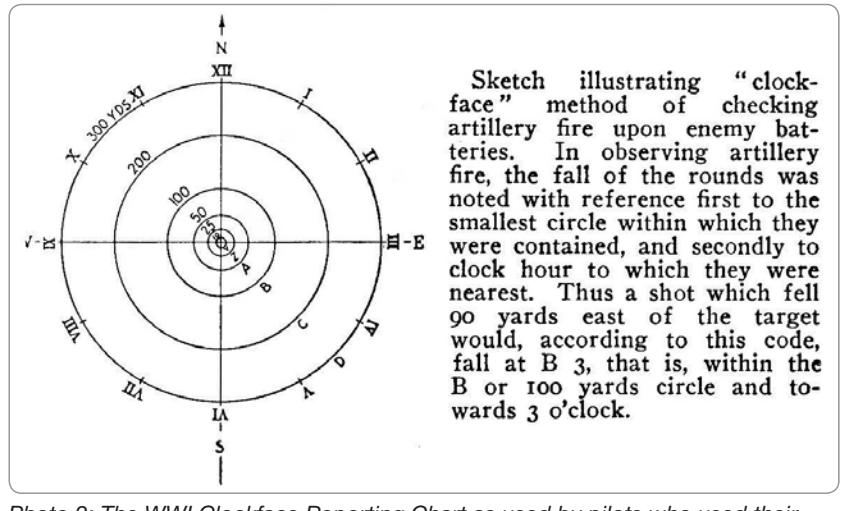
Photo 1: A Baird TV image from a phonovision disc, circa 1926.

Gil Miles A3II, VK2KI (SK) is largely remembered for his pioneering work in television and facsimile during the late 1920s and early 1930s particularly with Television and Radio Laboratories and Radiovision (Australia) Ltd. Possibly the first facsimile machine to be made in Australia was largely the result of Gil's inspiration and drive. A version of this machine was used to transmit over a land line a picture to the Melbourne Herald of Captain de Groote slashing the ribbon to open the Sydney Harbour Bridge - ahead of the official opening party!

However, a copy of a letter written by him in 1966 reveals that Gil was really a multi-faceted amateur pioneer. This is the story about some of Gil's experiences with aeronautical radio before he became involved in those early image transmissions.

Point Cook near Melbourne is considered to be the spiritual home of the RAAF. Although used initially by the army as a flying school from 1913, by the time Gil arrived, the RAAF had placed its mark on the 297 hectare (734 acre) site. The whole aircraft industry including wireless equipment at that time was quite young and basic and even the first powered flight in Australia had taken place barely 12 years earlier. If radios were used at all in aircraft, they were still spark transmitters and not permanently installed. Much of the early RAAF flying work was done in conjunction with the army for artillery spotting and ranging. Aircraft could spot the accuracy of artillery shelling, and by use of a form of a 'bulls-eye' report, guide gunnery aiming to their desired target.

According to Gil's letter, he joined the RAAF, service number 369, in March 1922 as an aero-engine fitter in No.1 Squadron at Point Cook and then in 1924 he was suddenly transferred to the radio section. This all came about because Gil's hobby was amateur radio and at weekends he operated from home as 3II – before the VK prefix. At that time, there was an



Sketch illustrating "clock-face" method of checking artillery fire upon enemy batteries. In observing artillery fire, the fall of the rounds was noted with reference first to the smallest circle within which they were contained, and secondly to clock hour to which they were nearest. Thus a shot which fell 90 yards east of the target would, according to this code, fall at B 3, that is, within the B or 100 yards circle and towards 3 o'clock.

Photo 2: The WWI Clockface Reporting Chart as used by pilots who used their W/T to report to the ground artillery where their shells fell in relation to the desired target. From Appendix 6, The Australian Flying Corps by EM Cutlack, University of Queensland Press and The Australian War Memorial. 1940 edition ISBN 0 7022 1728 X.

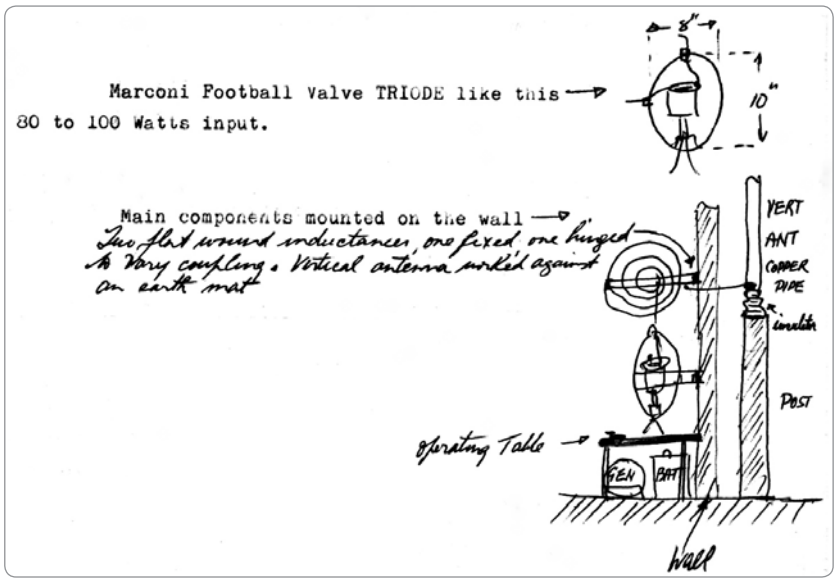


Photo 3: Gil Miles drawing of the Marconi 'football' type valve TX.

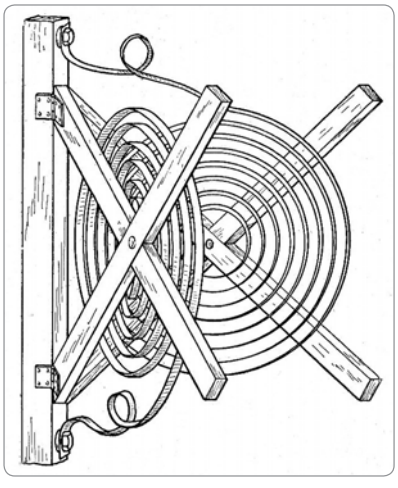


Photo 4: The tuning helix coils.

American expedition to Greenland (the MacMillan Expedition*) and Gil was receiving short-wave transmissions from it on his special 'low loss' two valve receiver.

Gil obviously talked (perhaps quite excitedly) amongst his work colleagues about hearing the short-wave signals direct from the MacMillan Expedition on the other side of the world. His experiences then started to filter up the management chain at Point Cook!

Picking up the story from Gil's letter and in his own words:

'My Officer in Command, Flight Lt. Cobby got to hear of this and realising the potential of these new short-waves, asked me to demonstrate my receiver to him. This I did in his home at Point Cook.

The outcome was he wanted details of a transmitter capable of working the RAF in England direct. My estimation was that a 100 watt transmitter could be built for about £80 ($160). This was accepted and I was transferred to the Radio Section specifically to do this. With their help, particularly from Flight Sergeant Barfield, contact was made with the RAF (in Calshot?) using a Marconi 'football' type valve as a keyed 100 watt input oscillator with 1200 volts on the anode from a 24 volt genemotor and using two edge-wound helix coils screwed to the wall and coupled to a vertical copper tube antenna and if I remember rightly, the wave-length was 32 metres.

This was the air force's first short-wave station, callsign V1S -Victorian One Squadron.'

According to *'A Saga of Achievement – The RAAF Radio Story'* (ISBN 0 9595927 0 9) by ER Hall (1978), p 114, acknowledgment of the feat is made but the activity received no official recognition! Such is the way that officialdom works and history can be distorted as a result. According to the RAAF Radio Story, *'... two years elapsed before **permanent** communications were established with the Royal Air Force in England.'*

So was Gil Miles dreaming? Who paid his bill for the transmitter he constructed and operated at Point Cook in 1924? Why could not this early RAAF team achievement be appropriately recognised? All *we* have to work with is a copy of Gil's letters and the odd mention of some of his pioneering work.

Photo 5: The Point Cook operating room Easter 1935.

There is also a sketch of part of the transmitting equipment which Gil drew in one of the letters. To my mind, there is a commonality between it and a recently donated photograph taken in the Point Cook operating room during the Easter Camp of the Wireless Reserve in 1935 (although I suspect the date could have been earlier). I'm not suggesting that this is the same equipment as, after all, it is up to 10 years after Gil's work, but the construction does appear to reflect the style of his earlier work.

Gil's letter then goes on to report a series of survey and army co-operation flights he did out of Point Cook. He states that he was lucky enough to be selected as the mechanic and radio operator on several of these flights.

The first flight involved two DH9 aircraft to Perth and return, mainly for spotting and co-operation with the army at Fort Forrest. One can only assume that this was at or near Forrest on the Trans-Continental Railway line, some 1200 km from Perth and about 100 km from the SA/WA border. This flight appears to have been in November 1925. The transmitter used was a quenched spark-gap type on 1500 metres and the receiver, a three valve unit powered from a wind driven generator mounted outside on the fuselage. Distances achieved during the flight were never more than about 30 km (20 miles).

Another flight took place to Tasmania using two Fairey 3D Seaplanes, this time as a survey flight. The radio equipment was a valve transmitter using CW on 1500 and 600 metres and the receiver again was a three valve job. Aircraft callsign was 9DR.

Again quoting directly from Gil's letter:

'I transmitted our position every 15 minutes and I think this was the first time this was done' and further into the letter,'I lost contact with Point Cook when over Western Port Bay at about 100 km (60 miles) I think, then transferred to 600 metres and continued to work coastal stations VIM Melbourne and VIL Flinders Island. Our position was relayed to the Air Board through the coast station. Contact was made again with Point Cook on the return flight at about the same place, Western Port Bay.'

Gil is but one of our early pioneers who undoubtedly was 'in there' right on the cutting edge of technological developments, but history has largely left part of his work to one side – only partly recognised. One would hope that this article may flush out more about Gil and in particular his exploits within the RAAF!

**In 1923 and 1924 MacMillan returned to Greenland and explored Cape Sabine and Ellesmere Island, again with the support of prominent institutions and organizations, including the Carnegie Institution and the National Geographic Society. MacMillan planned to return to Greenland in 1925. This time he proposed to use seaplanes to extend his area of exploration, and he asked the US Navy for assistance.* Wikipedia.

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DX - News & Views

Luke Steele VK3HJ
e *vk3hj@wia.org.au*

August on the bands

Nothing of much note occurred on the Sun during the month, with solar indices mostly between 100 and 150. There was some geomagnetic activity during the last week of August. Early September saw some increased solar activity, so let's hope for some improving propagation on the higher bands.

Again, twenty metres has been the best band for DX each day, with little happening on the higher bands. The low bands are just starting to pick up again, with stations worked on most evenings in North America on 160 and 80 m. Forty and 30 m remain fairly consistent as well.

Timor Leste has seen plenty of activity lately, with NB3MM on air early in the month, and N1YC and PE7T later in August. Nauru was activated by Yuki JH1NBN as C21BN for the third year in a row. A group of Japanese operators activated firstly Cocos-Keeling then Christmas Island. A group of American operators activated Tonga, then Fiji. Rick AI5P operated from Grenada then Tobago in the Caribbean.

There were several IOTA activations, including YB4IR/5 Tambelan, A43MI Masirah, RI0X Karaginskiy, YW5D Tortuga, VK5CE/8 Bathurst Island and TX4A Matthew Island.

5H1MD, **Tanzania**. Andrea IZ1MHY will be operating from Zanzibar Island. He'll be on HF, using CW, SSB and various digital modes. Andrea is also collecting donations for the 'Italia Day Hospital' in Zanzibar, and for another Italian not for profit organisation which has created a school and sports

Some upcoming DX operations

The following table summarises some of the DX activations that may be of interest to VK operators.

Date	Call	QSL via	Information
28 Sep - 14 Oct	5H1MD	IZ1MHY	Tanzania. IZ1MHY, HF, CW, SSB, Digital.
28 Sep - 14 Oct	C21GC	Club Log	Nauru (OC-031). LZ1GC, 160 - 6 m, CW, SSB, some RTTY.
2 - 15 Oct	T30D	LOTW	Western Kiribati, South Tarawa Atoll (OC-017). Team of 12 German operators, 160 - 6 m, CW, SSB, RTTY.
3 - 9 Oct	3D2YA	LOTW	Fiji, Mana I (OC-121). JA1NLX, 30 - 10 m, mainly CW, possibly some SSB and Digital.
3 - 13 Oct	TX5Z	LOTW	Austral I, Raivavae I (OC-114). N7QT, 80 - 10 m, CW, SSB, Digital.
3 - 13 Oct	A35RT	VK3GK	Tonga, Eua I (OC-049). VK3GK, 80 - 10 m. Spare time operation.
3 - 15 Oct	YJ0X	LOTW	Vanuatu (OC-035). ZL3PAH, ZL4PW, ZL3GA, G3USR, 80 - 6 m, possibly 160 m, CW, SSB, RTTY.
4 - 18 Oct	S79KB	DL2SBY	Seychelles (AF-024). DL2SBY, 30 - 10 m, CW, SSB, RTTY.
4 - 19 Oct	5Z4/DJ4EL	LOTW	Kenya, Lamu I (AF-040). DJ4EL, 40 - 10 m, SSB.
8 - 20 Oct	4W/G3ZEM	LOTW	Timor Leste (OC-148). G3ZEM, 80 - 10 m, mainly CW.
8 - 21 Oct	W1AW/KH0	LOTW	Mariana I, Tinian I (OC-086). JA1NVF, 80 - 10 m, CW, SSB, RTTY.
8 - 29 Oct	ZK3Q, ZK3E		Tokelau, Nukunonu Atoll (OC-048). SP5EAQ, SP5ES, 80 - 10 m, SSB, CW.
13 - 29 Oct	VK9DLX		Lord Howe I (OC-004). Team of 15 operators, 160 - 6 m, 10 stations.
18 - 26 Oct	J79L, J79X	SP9FIH	Dominica (NA-101). SP9FIH, SP6AXW, 40 - 10 m.
18 - 26 Oct	TX7G	LOTW	Marquesas, Nuka Hiva I (OC-027). N7SMI, KZ1W, VE7KW, 80 - 10 m, SSB, CW, RTTY.
18 - 31 Oct	VK9XSP	LOTW	Christmas I (OC-002). Team of eight Polish operators, 160 - 6 m, CW, SSB, RTTY.
19 - 31 Oct	4W/K7CO	OQRS	Timor Leste (OC-148). K7CO, VE4EAR, 80 - 10 m, SSB, CW.
20 Oct - 4 Nov	5R8M	LOTW	Madagascar, Nosy Be (AF-057). Large team, 160 - 6 m, CW, SSB, RTTY.
21 - 27 Oct	KH8B	JH3PRR	American Samoa (OC-077). KH8B, 160 - 10 m.

facilities for children on the island. For more information see *http://www.5h1md.tk/*

C21GC, **Nauru**. Stan LZ1GC will operating on 160 - 6 m, using CW, SSB and maybe some RTTY. Equipment will be a TS-480SAT/ACOM 1011, with a TS-480HX as a backup. Antennas will be verticals. For more information see *http://www.c21gc.com/*

T30D, **West Kiribati**. A group of 12 Germans plan a big activation on South Tarawa Atoll, 160 - 6 m, CW, SSB and RTTY. There will be four 500 watt stations operating continuously. For more information see *http://t30d.mydx.de/*

3D2YA, **Fiji**. Aki JA1NLX will be returning to Mana Island, to operate on 30 - 10 m, mainly CW, and possibly some SSB and digital. For more information see *http://www.asahi-net.or.jp/~yy7a-ysd/3D2YA_2014.htm*

TX5Z, **Austral I.** Robert N7QT will be on air from Raivavae I, on 80 - 10 m, CW, SSB and digital. He will be focusing on 80 and 40 metres.

A35RT, **Tonga**. Lee VK3GK plans some time on air from Eua Island, 80 - 10 m. He will be there as a member of Rotary International who will be working on a clean water project. Lee hopes to be active in both Oceania DX contests.

YJ0X, **Vanuatu**. A team of four operators will be operating from a seafront location, on 80 - 6 m, and possibly 160 m. They will be using CW, SSB and RTTY, and plan to be active in both Oceania contests. For more information see *http://yj2014.wordpress.com/*

S79KB, **Seychelles**. Kasimir DL2SBY will be on air from Seychelles, on 30 - 10 m, using CW, SSB and RTTY.

5Z4/DJ4EL, **Kenya**. Markus DJ4EL will be operating from Lamu Island, on 40 - 10 m SSB. See QRZ.com for his QSL instructions.

4W/G3SEM, **Timor Leste**. Bob G3ZEM will be operating 80 - 10 m, with a focus on low bands if conditions permit, mainly CW. QSL also OK via M0URX OQRS.

W1AW/KH0, **Mariana I**. Kit JA1NVF will be operating from his station in Tinian I on HF and 6 m, using CW, SSB and RTTY, for the ARRL centenary.

ZK3Q, ZK3E, **Tokelau**. Jacek SP5EAQ and Marcin SP5ES have requested callsigns ZK3Q and ZK3E respectively, to operate from Nukunonu Atoll on 80 - 10 m, SSB and CW. Dates of the activity are still tentative. For more information see *http://zk3.sp5drh.com/*

VK9DLX, **Lord Howe I**. A group of 15 is planning a big operation on 160 - 6 m, CW, SSB and RTTY. They will have 10 stations with amplifiers, and two monoband antennas for each band. For more information see *http://www.lordhowe2014.org/*

J79X, J79L, **Dominica**. Janusz SP9FIH and Kazik SP6AXW will be operating using the callsigns J79X and J79L respectively, on 40 - 10 m. They hope to fulfil the demand for Dominica as a new country for smaller stations. For more information see *http://j7.dxpeditions.org/*

TX7G, **Marquesas I**. A team of four operators on Nuka Hiva I. 80 - 10 m, CW, SSB, RTTY. For more information see *http://tx7g.com/*

VK9XSP, **Christmas I**. A team of eight Polish operators, 160 - 6 m, CW, SSB, RTTY. If you missed the recent smaller activations of Christmas Island, you should look out for this much larger activation. For more information see *http://www.vk9xsp.dxing.pl/*

4W/K7CO, **Timor Leste**. Jon K7CO, Ed VE4EAR and possibly four others will be on 80 - 10 m, SSB and CW. For more information see *http://www.nielsen.net/4w/*

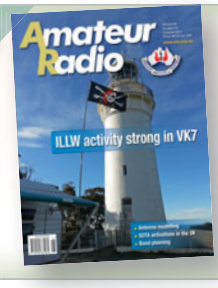
5R8M, **Madagascar.** A large team will be operating from Nosy Be, 160 - 6 m, CW, SSB, and RTTY, using four continuously operating stations. This looks like the largest activation from Madagascar in some time. For more information see *http://www.mdxc.org/5r8m/*

KH8B, **American Samoa**. Masa KH8B will be operating on 160 - 10 m for the CQ WW SSB contest, but will be on air for a few days before and the day after.

Big news is that the US Fish and Wildlife Service has agreed to allow an amateur radio operation from the Navassa National Wildlife Refuge. This operation is to occur within the next 18 months and will be coordinated with the USFWS workflow. The USFWS has requested proposals from those individuals and groups who have previously applied for a Special Use Permit. Navassa Island is ranked #2 Most Wanted by the DX Magazine Survey, and #1 by Club Log.

Special thanks to the authors of The Daily DX, 425 DX News, DX World, NG3K's Announced DX Operations, and QRZ.DX for information appearing in this month's column. Interested readers can obtain a free two week trial of The Daily DX from *www.dailydx.com/trial.htm*

Contribute



Articles and high quality photographs for *Amateur Radio* and *Callbook*.

See *http://www.wia.org.au/members/armag/contributing/*

Spotlight on **SWLing**

Robin L Harwood VK7RH
e *vk7rh@wia.org.au*

Spring is well and truly here and I am relishing the warmer weather. I have been playing around with various streaming sites lately as the major international broadcasters are hurriedly leaving shortwave. In mid-August, Radio Australia axed specific shortwave programming and laid off staff yet RA remains on-air by mostly relaying programs from Radio National, 2JJJ and ABC Grandstand. I also believe that the BBC World Service is planning to exit shortwave sometime next year. The Spanish REE broadcasts may have ceased by the time this column is printed. This leaves Radio Rumania International in Bucharest as one of the few remaining Europeans on shortwave. The Russians did post registrations to the HFCC but these may be wooden or non-active as it is doubtful that the Voice of Russia will reappear.

I have been hearing utility services coming up into the former international broadcasting allocations - although there are still broadcasters who will use it and this will continue but not as it was just a few years ago. The Chinese, as I have been stating for some time, have also increased both online and HF output. However they seem to dislike any external broadcasts directed to China, specifically in languages and dialects spoken there.

I recently received an online query whether there were any external broadcasts from Indonesia. These are spasmodically heard on approximately 9525.9, for example around 1000 UTC when the target is scheduled to be Australia in English. Monitors state that this appears to be the only channel used, despite what they state in their on-air announcements. Other languages have been occasionally observed. There is a relay of the domestic Indonesian service heard on 9680 from Jakarta but its signal is lost in a long standing radio war between the PRC and Taiwan. There were irregular domestic stations heard in the tropical bands, usually during Ramadan. Most of these have now left the tropical allocations for FM.

Propagation has been unpredictable as I am compiling this column. There was an auroral display which severely degraded high frequencies and looking at the spectrum display from the Twente University website there was little to be seen, particularly from Europe and North America. There was one standout, Argentina and it was offset on 11710.69 at 0430. Modulation was slightly distorted but I could identify the language as Chinese. Now at that hour there would be zero propagation to Beijing as the local time would be 1 pm whilst it would be 2 am in Buenos Aires. Certainly quite an odd choice from Argentina but I also noted that RAE is not observed too often as it is usually overcome by regular usage of 11710 by Cuba and others.

Don't forget you can email news and comments to me at *vk7rh@wia.org.au*

Plan Ahead

OCEANIA DX Contest Phone	4 October
OCEANIA DX Contest CW	11 October
Ballarat Amateur Radio Group HAMVENTION	19 October
2014 HAMFEST on the Gold Coast	25 October

VHF/UHF - An Expanding World

David Smith VK3HZ
e *vk3hz@wia.org.au*

Weak Signal

More reports of possible losses of our spectrum have surfaced during the month.

3.5 GHz Band

Further to my report two months ago regarding a review of the 3.5 GHz band, the Minister for Communications has issued a draft Direction to the ACMA to enable licensing in the 3.5 GHz band for use in the National Broadband Network (NBN) around the major mainland cities.

A 25 MHz block at 3400-3425 MHz and a 50 MHz block at 3492.5-3542.5 MHz are specified in the draft Direction document. Amateur weak signal operation is currently located in a 2 MHz block starting at 3400 MHz and so will be directly affected.

The draft Direction requires the ACMA to take all necessary steps by 30 April, 2015 to be in a position to issue apparatus licences after that date, for the purposes of the NBN.

The Department of Communications is seeking public comment on the Minister's draft Direction and an accompanying Explanatory Statement via its website. All interested parties, including all amateurs with equipment either operational or under construction, are urged to lodge comments.

1.2 GHz Band

According to a report on AMSAT UK: *http://amsat-uk.org/2014/08/13/23-cm-band-and-wrc-2018/*

A paper to be discussed at the IARU Region 1 conference in Varna-Albena, Bulgaria on 21-27 September, 2014 highlights the threat to continued amateur radio usage of our 23 cm allocation which is now being used by the Galileo GPS system.

Up until now there have only been four Galileo test satellites in orbit which have been used to validate the system. The first two satellites of the operational Galileo GPS constellation were launched on 22 August, 2014 and will be followed by further launches over the next three years. During the initial test phase, two German ATV repeaters were shut down due to interference to a user's Galileo receiver. There are also rumours that all 23 cm repeaters in Austria were shut down.

This is yet another threat that we need to keep a close eye on.

Lyle Patison VK2ALU (SK) VK EME pioneer

Roger VK2ZRH has submitted this article about the achievements of Lyle VK2ALU:

The Australian V-U-SHF community, and the global EME tribe, lost an outstanding leader on 17 July, 2014. Lyle put Australia 'on the map' on 432 MHz EME from 1972, when moonbounce contacts into the southern hemisphere, on any band, were rare indeed.

Over the decades from the late 1960s through to the 21st century, Lyle patiently pursued his strong interest in V-U-SHF terrestrial DX and the 'ultimate' DX, moonbounce, over the last three decades of the 20th century, establishing a number of significant records along the way on 432 MHz, 1296 MHz and 10 GHz.

To achieve success with projects large or small, Lyle had a personal philosophy for success, which he dubbed 'PEP' – planning, effort and persistence. His philosophy certainly paid off.

I recall first meeting Lyle when I returned to live in Sydney in 1971 and joined the NSW VHF & TV Group. Lyle lived south of Sydney, near Wollongong, and was a member of the Illawarra Amateur Radio Society. On learning that the University of Wollongong had taken over responsibility of a 10 metre diameter dish facility from the CSIRO at nearby Dapto, Lyle spawned a plan to return it to productive use for moonbounce experiments.

Through the auspices of the Illawarra ARS, Lyle convinced the University to permit access. He gathered a team of local enthusiasts to assist acquiring, installing and commissioning the required equipment for the station, which used the IARS callsign VK2AMW from the early 1970s through the mid-1980s. In the early 70s, Lyle presented a number of lectures to the NSW VHF & TV Group on the moonbounce project and contributed reports to the VHF-UHF newsletter I produced at the time – 6UP. Lyle was a subscriber.

Led by Lyle, the VK2AMW group received their own echoes for the first time on 31 March, 1972, at around 1130 UTC, recorded clearly on a chart recorder, seen in Figure 1 (from 6UP for May 1972, p.6).

From that first success, VK2AMW went on to work WA6HXW to set a new EME DX record for the era. Here's how that went, in Lyle's own words: Moonbounce tests were

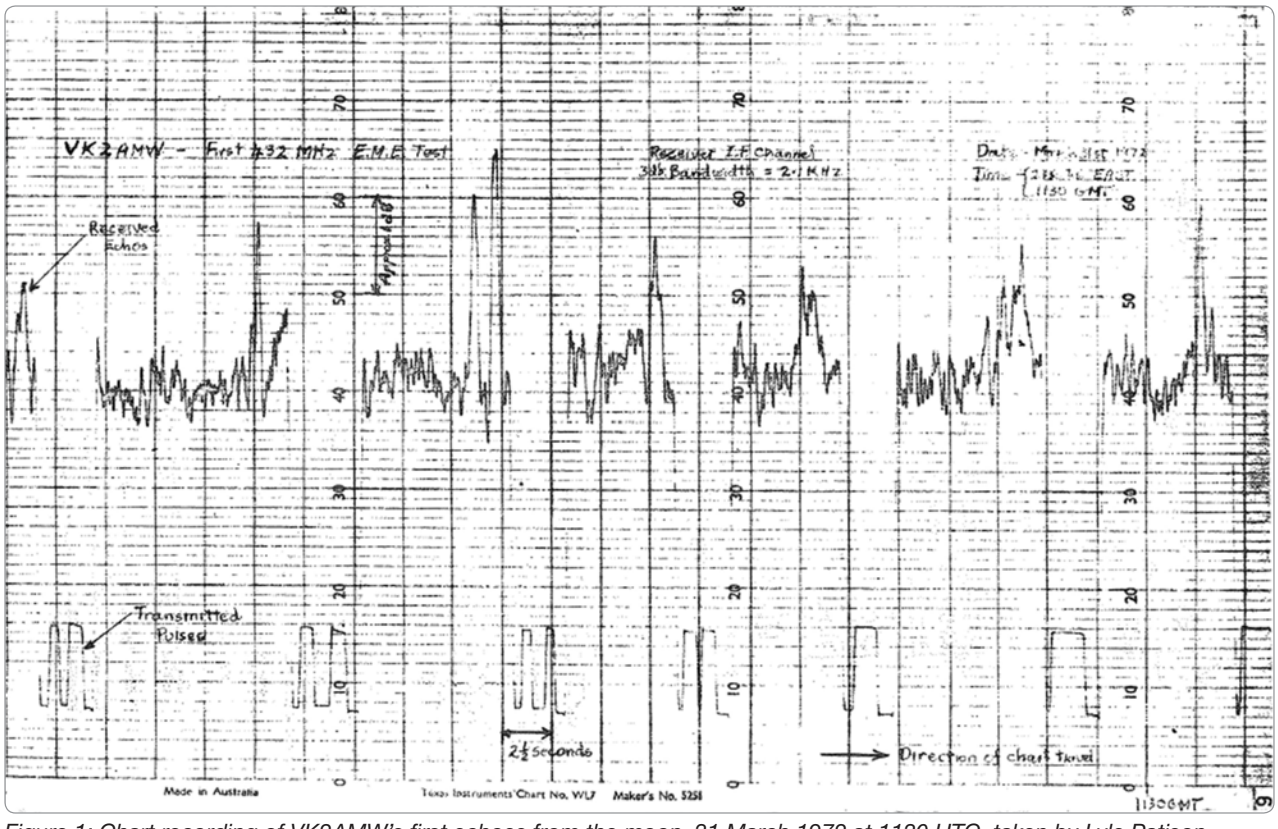


Figure 1: Chart recording of VK2AMW's first echoes from the moon, 31 March 1972 at 1130 UTC, taken by Lyle Patison VK2ALU (6UP, May 1972).

then arranged with WA6HXW in California USA and on the second test on 19/4/72 signals were heard both ways, resulting in the ARRL recognizing WA6HXW and VK2AMW as the new holders of the 432 MHz Moonbounce distance record.

The group had a high power permit, the transmitter using a pair of 4CX250s in the final, putting out 400 W carrier. The EME system was assembled from a combination of commercial equipment, adapted ex-commercial and homebrew gear. A Drake 2B was the station receiver, fed by a 432-28 MHz solid-state converter made by STC. The front end preamp used a BFR91 with a noise figure of 3 dB. This was upgraded in late 1972 with a Fairchild MT4578 (from K6MYC), yielding a NF of 1.2 dB.

Over 1972, VK2AMW with Lyle at the helm conducted 18 EME 'tests' with WA6HXW, OZ7UNI, K2UYH and W6FZJ. It was tough going, however, as signal reports were only exchanged on six occasions. Two skeds with OZ7UNI were unsuccessful, only two out of six succeeded with WA6HXW, three out of five with W6FZJ and only one out of five with K2UYH. Persistence paid off.

This was an encouraging start and cemented VK2AMW as a key station in the global EME tribe of the era. It was a team effort, inspired by Lyle, with local amateurs Hank VK2BHL, Charlie VK2ZEW and Roger VK2BRE on the team.

The signal from VK2AMW gained accolades following an escapade in January 1973 by amateurs at the US Naval Research Laboratory in Washington DC, who used a 45.7 metre (150 foot) dish to listen for other amateurs' EME signals on two metres, 70 cm and 23 cm. The listening test was widely publicised around the world. Here are Lyle's own words, again: VK2AMW gained the distinction of being the best signal heard south of the equator on any of the bands (144 MHz, 432 MHz and 1215 MHz) used by NRL for the tests.

On 30 March, 1974, VK2AMW made their first European contact, working Peter G3LTF, to establish a new world DX record for 432 MHz EME of 16,955 km, which wasn't bettered for many years. Contacts were predominantly made by hand-sent Morse, received by ear. However, at Lyle VK2ALU's behest, VK2AMW also chased QSOs on RTTY, first working Al Katz K2UYH and, later, others. You might say these QSOs opened the 'digital era' for EME.

Almost 11 years after that 70 cm EME contact with G3LTF, having moved to 1296 MHz in the mid-1980s, VK2AMW worked Peter again on 2 March, 1985.

Sadly, episodes of vandalism at the Dapto dish site forced the closure of the VK2AMW EME station and Lyle embarked on building

gear for 10 GHz, in time setting a VK1-VK2 terrestrial DX record with portable gear in company with Bill VK2ZAC – VK2ALU/1 worked VK2ZAC/2 on 2 January, 1995, for 218.4 km. But, the call of the Moon was strong and Lyle assembled a 10 GHz home station based on a 3.8 metre solid dish, which he mounted on a trailer that he towed up his driveway to position it for EME – no local council permits required! From the footpath outside his home, it was an impressive sight, indeed. With ingenuity typical of Lyle, for the dish feed, he fashioned a rectangular to elliptical section waveguide transition in his home workshop.

Characteristically, Lyle set two world DX records on 10 GHz; first, in 1994, to WA7CJO for 12,601.3 km on 9 October, 1994, followed by a contact with G3WDG for 17,000.4 km, on 18 August, 1996.

I understand that Lyle's interest in amateur radio was sparked from his experiences in flying with the RAF Bomber Command in WW2; having survived the very high casualties of that unit. He subsequently gained his amateur licence in the late 1940s. For all his towering achievements, Lyle was a humble man, never boastful, willing to share his knowledge and provide advice when asked. He gave many well-prepared presentations on the practicalities of EME, which always created great interest. In projects large or small, Lyle was patient, painstaking and thorough, from the planning right through to implementation. The '20 contacts in 10 minutes' of 20 metre DX was not for him; 20 contacts in a year was a busy year!

He never stood still with his amateur radio exploits; there was always some improvement that he saw could be made, some new experiment or test to perform, some new ground to break. When he encountered some aspect where he knew his knowledge was lacking, Lyle set out to learn about it. One time, I recall, as he was working on his 10 GHz EME system, Lyle telephoned me, asking if I knew of a reference work on solar noise. He remembered a conversation we'd had in the 1970s, when I worked at IPS Radio & Space Services and had refurbished a multi-band microwave solar radiometer, and thought (correctly, as it turned out) that I might be able to help.

The Australian radio amateur community and the international EME tribe have lost a remarkable individual.

I would like to thank Ross VK2VVV and Hank ex-VK2BHL for assistance in assembling the foregoing. The annals of 6UP, 1972-1974, provided some reference material, along with the WIA Australian VHF-UHF records since 1947.

Please send any Weak Signal reports to David VK3HZ at *vk3hz@wia.org.au*

Digital DX Modes

Rex Moncur VK7MO

Extreme grids 10 GHz terrestrial

Last month Rex VK7MO reported on the approach taken with Dave VK3HZ in planning extreme grids on 10 GHz using aircraft scatter and the ISCAT-B WSJT mode. QSOs have been completed (and one failure as noted) with Dave, using this mode and aircraft scatter as follows:

QF49 40 km east of Coonamble (775 km).

QF39 100 km north-east of Cobar (703 km).

QG20 45 km north-west of Bourke (818 km).

QG21 Queensland to VK3 (905.2 km).

QF09 100 km north of Broken Hill (753 km).

PF98 100 km north of Yunta SA (793 km).

PF83 Kangaroo Island (645 km).

PF88 Lowly Point 20 km east of Whyalla (785 km) unsuccessful.

Of note is the longest contact to date - 905.2 km into QG21. This is understood to be the first VK3 to VK4 terrestrial contact on 10 GHz. This was only achieved by careful planning, finding a high location at the VK3 end on the northern side of the Great Dividing Range with the land falling away providing visibility to aircraft flying at 40,000' (12,190 metres) in the VK4 direction at a range of 480 km.

It is noted that generally these extreme distances are only achieved when there is good weather and we suspect an improvement in the radio refractive index. It is noted that the failure at PF88 coincided with poor weather but could also be attributed to the fact that at the crossing point the aircraft are generally ascending from or descending to Adelaide and are perhaps not high enough. This grid requires a concerted effort at a time when weather conditions are conducive to improved radio refractive index and a focus on Perth flights.

A summary and more detailed reports can be found at: *http://www.vk3hz.net/microwave/VK7MO-10G.htm*

24 GHz EME DXpedition using JT4f

Following GippsTech, Rex VK7MO took the opportunity to test out his dual PA portable 24 GHz station, which uses a 1.2 metre Mitec dish (1.14 metre effective if you exclude the rim). Up to now Rex has used a single DB6NT 10 watt PA and could only work EME under very good conditions (that is, low degradation, spreading and water vapour at both ends and a long common window to allow averaging on JT4f). In order to achieve a viable portable EME operation (that is, QSOs under

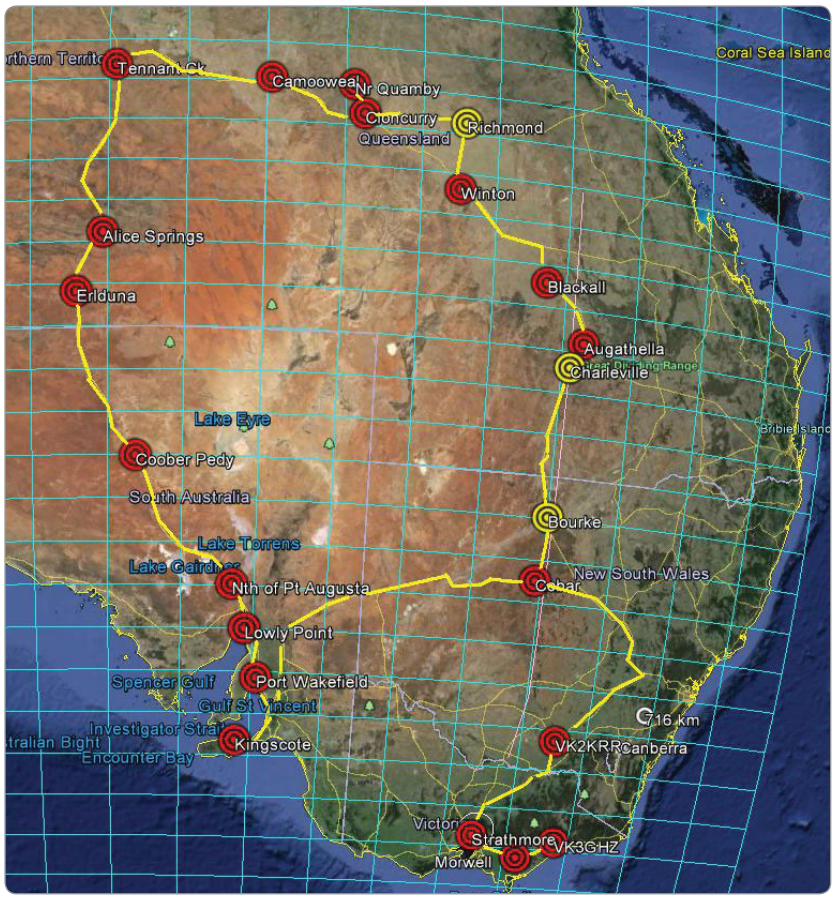


Figure 2: Grid locators activated on 24 GHz EME. Successful QSOs with one or more stations marked in red and failures marked in yellow.

average conditions) two 10 watt PAs have been phased up to give around 20 watts. This involves the use of waveguide Magic Tees as reported by Charlie Suckling in DUBUS 2/2014 - an article based on Charlie's work in tuning up Rex's Magic Tees. The extra 3 dB has proved to make a major difference and so far Rex has been able to activate some 22 grid locators on this trip with W5LUA, OK1KIR or G3WDG as shown in Figure 2. At only three locators, marked in yellow a QSO was not achieved. The reasons were: Richmond - cloud and rain for OK1KIR; Charleville - OK1KIR accidentally clicking the TX first button and thus being in the wrong period; and Bourke - a fractured connection in the DIN plug that provides TX audio to VK7MO's IC-910H.

During this trip, data on what was received on all QSOs has been recorded and compared with data on degradation, spreading and water vapour loss to produce a parameter which we call Total Extra Loss referenced to perfect conditions. This data is plotted at Figure 3.

The data is referenced to W5LUA's 2.4 metre dish and a correction has been applied for the additional gain of OK1KIR and G3WDG's larger dishes. Two of the G3WDG failures #9 and #31 relate to PA failure. The OK1KIR failure #11 and # 39 can also be put down to equipment or operational issues. These aside, it can be seen that QSOs are possible with up to around 13 dB Total Extra Loss. To get some idea of what that means, one of the more marginal QSOs to date, #12 had a Total Extra Loss of 13.5 dB, made up as follows:

7.3 dB due to water vapour (Precipitable Water [PW] of 35 mm at OK1KIR and 10 mm at VK7MO Cobar).

6.7 dB as a result of 290 Hz full spreading due to libration. (Referenced to 1 Hz spreading but taking account of the fact that OK1KIRs antenna beam-width is smaller than the moon and does not see full spreading).

2.0 dB degradation as a result of moon distance being greater than the minimum.

2.5 dB offset for the additional gain of OK1KIR's antenna compared to W5LUA's.

The success of this trip turned out to be much better than expected – in part due to the dual PA at VK7MO, which brought his power level up to those of other stations,

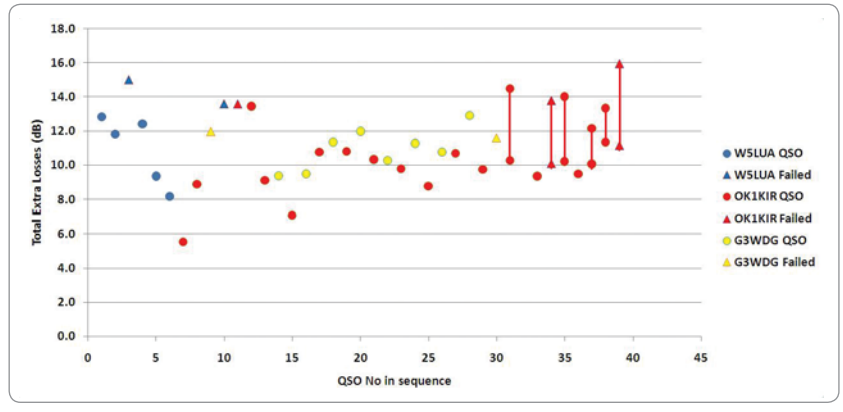


Figure 3: Total extra losses due to degradation, spreading and water vapour. Note that the red bars represent the range over which the loss due to cloud is a factor – more work is required to define the effects of cloud within this range.

but also due to the fact that the locations in central Australia were very dry (PW in the range 7 to 12 mm) and compensated for wide spreading. Similar success could not be expected near the coast where PW is normally much higher.

Special thanks: One of VK7MO's dual 24 GHz PAs failed early in the trip and this was kindly replaced with Doug VK4OE's PA who also provided the test and measurement equipment to ensure the PAs were correctly balanced. 10 GHz EME QSOs were also routinely conducted on this trip but VK7MO's 10 GHz PA also failed and was repaired with the expertise of David VK5KK.

Detailed reports have been prepared on all QSOs and conditions and an overview that will reference each individual report will be produced at the end of the trip which will be available at: *http://www.vk3hz.net/microwave/VK7MO-24G.htm*

Please send any Digital DX Modes reports to Rex VK7MO at *rmoncur@bigpond.net.au*

Meteor Scatter

Dr Kevin Johnston VK4UH

The month of August proved to be a very active period on the meteor scatter diary for the year. The Southern Delta Aquarid meteor shower, a class-one major event which was expected to peak on 28-29 July, was well in evidence as I was preparing last month's report. Although this shower is known to have a very broad peak this was exceptional this year. A review of the VK Logger postings suggest that enhanced shower propagation continued for at least 10 days beyond the expected peak, perhaps even longer.

Another major event last month was the one-man VHF DXpedition undertaken in August by Wayne VK5APN. Planning a route through outback VK5 and VK8 and focussing on two metre EME and MS operation, Wayne activated 10 grid squares, many of them extremely rare and remote. The activity also providing the first VK8 contact for many stations on two metre MS. Irreparable antenna failure towards the end of the trip prevented his activating a further two planned grid squares. This was a truly outstanding achievement for a single operator.

Wayne VK5APN has provided the following report of his activity:

'Realising that the conditions for August were brilliant and the best for the year, I decided to activate VK8, one part of VK that is lacking in VHF/UHF activity. Seeing the distances involved and all the un-worked and rare grid squares in outback VK5, I decided to activate alternate grid squares on the way to the Territory and the ones I did not activate on the way, I would activate on the way back. That way the distance travelled each day was only a couple of hundred kilometres, stopping in the public road side parking areas (thanks to WIKI CAMPS app) and sleeping in the car.

Hence the plan was to activate PF89, PF78, PG70, PG72 and PG63 from the 8th to the 12th August, then to cross the border into VK8 and activate PG64 and PG65 from the 13th to the 18th and then head home activating PG62, PG71, PF79, PF88 and PF97 from 19th to the 23rd. My intention to activate VK8 on Meteor scatter was posted on the VK Logger forum. Some of the above grids are extremely rare (PF78 and PG72 as an example) as they have only six or seven sub squares that the main road (Stuart Highway) traverses through. Also being in the Woomera Protection area, you are not allowed to deviate from the main road without prior permission.

The first grid was PF89 which was a short journey off the main route, but being so close to the Stuart Highway (50 km) I decided to activate this. This is just north of the Woomera township. VK7MO apparently had activated this grid sometime previously. After the activity and in the process of packing up, I was visited by the defence force guards, wanting to know what I was doing and if I knew about the Woomera Protection area. I explained to them what I was doing and the map of grid squares. They assumed it was HF communications that I was doing. I informed them that it was VHF. They could not see how that would work until I explained about Meteor Scatter propagation - they were intrigued. They took my details and said they would inform the other guards and that I should not have a problem in the future, which indeed I didn't.

Overall the trip was a success, providing VK8 for the first time to many stations. One station had been trying for 49 years, 26 weeks and 3 days - longer than I have been alive.

For the complete trip I managed to work 14 initials. From VK8 I worked seven initials from the two grids (PG64 and PG65). One of the highlights of the trip was whilst in PG65 I had a car pull up and a gentleman hop out. Before he could introduce himself, I had worked out who it was - none other than Rex VK7MO, as he was heading north on his microwave grid hopping adventure. The microwave dishes on top of his 4X4 were the giveaway. On my return leg in PF79, strong winds blew up and after a while one of the tent pegs holding a guy line was pulled out of the ground and the antenna system came crashing down, destroying it. Hence I did not activate PF88 and PF97. As these are relatively close to home QTH, I intend activating these at a later date. I will experiment with antenna systems for the next trip as I think the one taken on this trip had a too narrow azimuth beam-width and hence struggled with stations on the longer paths, particularly to VK4 from VK8.

The complete list of stations worked from the activated grid squares on two metre Meteor Scatter included:

VK1WJ PF78; VK2DVZ PF78; VK2XN PF78, PG64; VK3AMZ PF78; VK3BJM PF78;

VK3HY PF78, 79, PG62, 64, 65, 70, 71; VK3II PG64; VK3KH PF79, PG64; VK4CRO PF89;

VK4JMC PF78, 79, 89, PG64; VK4LHD PF89; VK4UH PF89; VK5GF PG64;

VK5PJ PF78, 79, 89, PG63, 64, 65, 70, 71, 72.

Another hurdle to overcome was arranging operating times, frequencies and transmission periods without access to the mobile phone network or internet (VK Logger, email, etc.), as a lot of the grids activated did not have coverage. Some that did were more off than on. Hence a lot more stations could have been worked. Added to the fact that a lot of stations had work commitments and were not QRV during those times. I did get random text decodes from Peter VK5PJ saying 'BEAM VK4' which I did but unfortunately nothing eventuated. All things to consider and lessons learnt for the next 'outing.' I am glad to have made some operators happy in providing VK8 to them. Now some may be applying for the 'Worked all States VHF' award.

I see the destruction of the antenna system and the early return a blessing in disguise. On arrival home, my wife said I should get my left leg checked out. It had been hurting for the last three or four days of the trip. A long story short, I ended up in hospital with DVT and am now slowly recovering. So once antennas and myself have been repaired, more grids may be on the agenda.

As my work involves some travel, many other grids could become activated sometimes, unfortunately, with very little notice. We also travel to Darwin and Alice Springs, so VK8 may become QRV again.'

The next Meteor Shower to prepare for will be the Orionids, another class-one event, expected to peak on 22 October – I inadvertently omitted this shower from my list last month.

Please send any reports, questions or enquiries about Meteor Scatter in general or the digital modes used to Kevin VK4UH at *vk4uh@wia.org.au*

AMSAT-VK

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About AMSAT-VK

AMSAT-VK is a group of Australian amateur radio operators who share a common interest in building, launching and communicating with each other through non-commercial amateur radio satellites. Many of our members also have an interest in other space based communications, including listening to and communicating with the International Space Station, Earth-Moon-Earth (EME), monitoring weather (WX) satellites and other spacecraft. AMSAT-VK is the primary point of contact for those interested in becoming involved in amateur radio satellite operations. If you are interested in learning more about satellite operations or just wish to become a member of AMSAT-Australia, please see our website.

AMSAT-VK monthly net
Australian National Satellite net

The net takes place on the 2nd Tuesday of each month at 8.30 pm eastern time, that is 0930 Z or 1030 Z depending on daylight saving. Check-in starts 10 minutes prior to the start time. The AMSAT-VK net has been running for many years with the aim of allowing amateur radio operators who are operating or have an interest in working in the satellite mode, to make contact with others in order to share their experiences and to catch up on pertinent news. The format also facilitates other aspects like making 'skeds' and for a general 'off-bird' chat. In addition to the EchoLink conference, the net will also be available via RF on the following repeaters and links.

In New South Wales
VK2RBM Blue Mountains repeater on 147.050 MHz

In Queensland
VK4RIL Laidley repeater on 147.700 MHz
VK4RRC Redcliffe 146.925 MHz IRLP node 6404, EchoLink node 44666

In South Australia
VK5TRM, Loxton on 147.175 MHz
VK5RSC, Mt Terrible on 439.825 MHz IRLP node 6278, EchoLink node 399996

In Tasmania
VK7RTV Gawler 6 metre repeater 53.775 MHz IRLP node 6124
VK7RTV Gawler 2 metre repeater 146.775 MHz IRLP node 6616

In the Northern Territory
VK8MA Katherine 146.700 MHz FM

Operators may join the net via the above repeaters or by connecting to EchoLink on either the AMSAT or VK3JED conferences. Past experience has shown that the VK3JED server offers clearer audio. The net is also available via IRLP reflector number 9558. We are keen to have the net carried by other EchoLink or IRLP enabled repeaters and links in order to improve coverage. If you are interested in carrying our net on your system, please contact Paul via email. Frequencies and nodes can change without much notice. Details are put on the AMSAT-VK group site.

Become involved

Amateur satellite operating is one of the most interesting and rewarding modes in our hobby. The birds are relatively easy to access and require very little hardware investment to get started. You can gain access to the FM 'repeaters in the sky' with just a dual band handheld operating on 2 m and 70 cm. These easy-to-use and popular FM satellites will give hams national communications and handheld access into New Zealand at various times through the day and night. Currently only SO-50 is available.

Should you wish to join AMSAT-VK, details are available on the web site or sign-up at our group site as above. Membership is free and you will be made very welcome.

Participate

Yarra Valley Amateur Radio Group Inc | See page 25 for details

SOTA News

Allen Harvie VK3HRA & Bernard Petherbridge VK3AV

This month we change the format a little to reflect the activities that have been taking place in the VK associations.

DX activities

DX interest in VK contacts remains quite high as a SOTA contact with VK is still a highly prized achievement in Europe. Conditions on 20 m are currently supporting EU-VK activity via long path between 0500 and 0800 UTC including S2S contacts.

Andrew VK1NAM reports the 20 m band has recently been open in VK1 for 90 minutes leading up to 0742 UTC sunset. Propagation of signals was long path as reported by European chasers. Chaser signal reports to Canberra ranged from 5-6 to 5-9 while the reception of Andrew's signal in Europe was 5-5 to 5-7 peaking 5-9 during the 30 minutes before sunset.

Bob VK5FO reports that in the last few days of August EU on 20 m has been pretty good - from around 0700 UTC until about 0830 UTC into VK5 working a decent pile-up from VK5/SE-005 on Sunday (24/08) afternoon local time (29 logged in 40 minutes), seven countries and another six on 25/08 between 0745 and 0815 (not bad for a Monday morning in EU!)

VK1 update

From Andrew VK1NAM: Simon VK1FAAS joined the VK1 Association to undertake his first solo activation of Mt Tennent, a difficult 780 metre ascent over six km. Using a Yaesu two metre HT, Simon achieved five contacts including a summit-to-summit contact with Ian VK1DI on Mt Wee Jasper. Congratulations to Simon for his first solo activation. Paul VK1ATP has achieved 100 sloth points; getting on 40 m over the last two weekends has increased the opportunity to chase a variety of VK activators. VK1 activators are tackling snow covered peaks to take advantage of the seasonal winter bonus for summits at 1200 metres ASL and higher. In recent weeks VK1 chasers have been paying close attention to SOTA activations from Europe in the 0500 to 0730 UTC window. A number of VK1 chasers are logging rare European QRP SOTA activations where the country association counts towards the Mountain Hunter Bronze and Silver awards.

VK2 update

From Andrew VK2UH: Over 230 additional summits have been proposed for inclusion in the VK2 summits list. These are not expected to be processed before the end of September, as the SOTA Management Team is very busy with new associations, including some from VK.

The additional summits are mostly in the mid north coast, central west and Riverina regions, with a small number of extras in the southwest and southern tablelands.

There have also been a handful of updates to summit names and some corrections of locations, thanks to some vigilant activators looking at the data and finding some anomalies then working with region managers to correct the errors. Fortunately our overall error rate is still very low, a sign of the quality of the original work!

Apart from that, some first-time activations of VK2 summits are still occurring and there is plenty of scope for more activators who are interested in operating backpack portable in a hilltop setting, making contacts on various bands with an ever increasing and appreciative group of SOTA Chasers.

VK3 update

From Allen VK3HRA: VK3 operators are exploiting the improved weather conditions now that winter is all but over. Whilst we still have to deal with snow on summits, cold wind and road closures there are many opportunities to gain extra points before the end of the bonus period.

Due to flexible work arrangements, there is quite a bit of activation activity during the week with enough chaser interest to ensure successful activations.

Slow/new CW operators wanted. Ron VK3AFW and Tony VK3CAT have been patiently running Thursday evening CW practice sessions. These CW training sessions are held on 3.540 MHz ± at 2030 EAST. Forty metres has been abandoned for the time being as propagation is poor for local contacts in the evenings. All welcome.

These sessions have directly resulted in an increase in CW activations. Personally, my CW skills have grown from non-existent to managing, resulting in completing my first CW only activation. Just like a real amateur!

For receiving practice at other times, try 145.650 FM for the ARV CW practice transmission or in the evenings 3.799 MHz for VK2WI's CW practice transmission.

VK4 update

From Dave VK4DD: The final 10 regions for VK4 are now included in the SOTA database and on-line as of 1 September 2014. This gives a total of 1389 qualifying summits over 14 regions for the VK4 association.

There are plenty of summits to activate on the coast from Tweed Heads to Cape York, or go west from Cairns to Cunnamulla. Of

special mention are the summits included in the islands of the Great Barrier Reef NP. Perhaps you can factor in a summit or two on your next holiday to/in Queensland.

VK5 update

From Nigel VK5NIG: Five VK5 amateurs (Bob VK5FO, Ray VK5RR, Andy VK5AKH, Stuart VK5STU and Nigel VK5NIG) activated Mt Gawler VK5/SE-013 on the morning of 30 Aug 2014.

The team's objective was to reach 1000 recorded QSOs from that summit. Andy VK5AKH logged the first OSQ from Mt Gawler in November 2012. VK5STU Stuart had the honour of making the S2S contact with Tony VK3CAT/p from Mt Matlock that sealed the deal! This summit is now the most activated summit in VK. Only another 90 to go to reach top 50! The photo shows Bob VK5FO, Ray VK5RR, Andy VK5AKH, Stuart VK5STU and Nigel VK5NIG all enjoying the event and loving the weather and the view here in VK5. Thanks to all those that have called in and also those that have activated since 2012 and made this a great summit to visit.

VK6 live from 1st September

From John VK6NU: VK6 went live on 1 September, 2014. Thanks especially go to Ron VK3AFW for all his efforts in getting VK6 to this milestone. Without Ron's dedication and actions in sorting out the many issues along the way, we would not be at the stage we are. Also thanks to Adam VK2YK, Heath VK3TWO, Matt VK6QS and Mike VK6WB for all their help. Setting up an association is not an easy task and there were many trials and tribulations along the way. Ron will post the revised VK6 ARM when it is completed. It is expected that Activations will start slowly until we get some interest happening. There are very few easy summits close to the city with a 60-90 minute drive and maybe a three – five km hike for most. So watch the SOTA Australia Yahoo group for the latest news and information.

Bob VK5FO, Ray VK5RR, Andy VK5AKH, Stuart VK5STU and Nigel VK5NIG gathered near the trig on Mount Gawler VK5/SE-013. Photo by Nigel VK5NIG.

Mike VK6MB appears to have been the first VK6 Activator. He was out early on the local morning of 2 September (still 1 September UTC). Mike was running 30 W from a KX3 with KXPA100 to a ZS6BKW dipole mounted on a 12 m Spiderbeam mast. Mike reports working 41 contacts in VK1, 2, 3, 4, 5, 6 and one with AD4XJ in South Carolina. The VK1 was a Summit to Summit (S2S) with Andrew VK1DA on Mt Ainslie VK1/AC-040 on 20 metres.

VK7 update

With the VK7 draft ARM and summit list submitted, we await news from the SOTA MT. It is understood that August may not be the best month to complete checks as many people in Europe and the UK go on holiday in August. It is understood that the MT have many applications for new associations to process. As Tasmania is a popular site for bushwalking, it is expected that several Activators will plan holidays and include SOTA activations.

VK DX

We are also seeing VK amateurs exploiting SOTA and WWFF to support activations whilst abroad. Recently Tony VK3CAT, Andrew VK3ARR and Glenn VK3YY have activated summits whilst 'pretending' to be on either work trips or family holidays. This is a much better export than the 'Bali Bogans'.

As these notes were being prepared, Paul VK5PAS was over in Europe activating SOTA summits within WWFF areas in Belgium and Germany. Paul has activated these summits with two of his Belgium mates, Marnix OP7M and Eddy ON6ZV. In Germany: Schwarzer Mann RP-003 and Eifel National Park DLFF-005. In Belgium: Signal de Botrange, ON/ ON-001 and High Fens National Park ONFF-001. Paul worked on both 40 metres and 20 metres and ended up with about 50 QSOs on each activation. Hopefully you were keeping your ears open for Paul using the special call of ON4IPA.

Contests

James Fleming VK4TJF
e *vk4tjf@wia.org.au*

The premier contest this month is the Oceania DX contest. Even if you are a little pistol station when you participate in the Oceanic DX contest you feel like a big gun station. Big pile ups are a common occurrence. There are many operators all around the world waiting to work you. Every station in Australia is in demand. The reason is that the contest has been getting more and more attention from the international amateur radio community and it has become rather popular. From European stations to North American stations they are all there, so this contest really tests your ability to work large pile ups, and weak signals. Perhaps it's so popular because it is a fun and easy contest. The results come out in a timely manner and the certificates are downloadable as a PDF file.

The Oceania DX contest is divided into phone and CW. Phone is the first weekend in October and that happens to fall on the 4th and 5th October this year. The CW contest is on the 2nd weekend in October, the 11th and 12th. Times for both are from 0800 UTC Saturday to 0800 UTC Sunday. The rules of the game here are to make as many contacts as possible both inside and outside of the Oceania region, if you are in the region; everyone else only gets points for contacts with stations within the Oceania region. High power is up to 1500 watts and low power 100 watts, QSO alerting assistance is allowed along with remote operation. Entry categories are single operator high and low power, and multi-operator single, two, or multi transmitter. The exchange is RST and a sequential serial number starting at 001. If a station does not give a serial number and a contact is made, no problem just list them as 001, however I don't think this will be much of a problem. The multiplier is the number of valid prefixes worked. The contact points per band are broken down as follows - 20 points on the 160 metre band, 10 points on 80 metres, five points on 40 metres, one point on 20 metres, two points on 15 metres and three points on 10 metres. Well that's it in a nut shell, pretty basic if you ask me. The easiest way to work the contest is using the VKCL software and let the program give you your score and submit your log electronically via email.

Now if you have not got enough contesting out of your blood by the end of October there is another good contest for you, the CW WW DX contest SSB, and this one offers some nice things for those who do things the classic way without computers and for those that like to QRP. So without further ado the goal is to work as many other amateurs in other zones and countries. Bands are 1.8, 3.5, 7, 14, 21, and 28. Exchange is the RS plus the CQ zone number. You get three points for working a station on a different continent and one point for contact with countries on the same continent. The multipliers are the different zones and countries. You can do single operator high-power 1500 watts, low power 100 watts, or QRP five watts, assisted or Rookie or classic. Rookie is if you have been licensed less than three years before the start of the contest. And classic means you can only use one radio, no QSO alerting assistance, only operate 24 of the 48 hours, and if you take a break it has to be for at least an hour. There is also multi-operator one, two, or multi transmitter. The dates are October 25-26, starting 0000 UTC Saturday to 2359 UTC Sunday. So have a great contesting month and have a listen to all the signals on the band.

Contest Calendar for October 2014 - December 2014

Month	Date	Starts at	Spans	Name	Mode
October	**4th - 5th**	**0800 UTC**	**24 hours**	**Oceania DX contest**	**SSB**
	11th - 12th	**0800 UTC**	**24 hours**	**Oceania DX contest**	**CW**
	18th - 19th	1500 UTC	24 hours	Worked All Germany contest	CW/SSB
	25th - 26th	0000 UTC	48 hours	CQ WW DX contest	SSB
November	1st - 2nd	1200 UTC	24 hours	Ukrainian DX contest	CW/SSB
	8th - 9th	0000 UTC	48 hours	WAE DX contest	RTTY
	22nd - 23rd	**0100 UTC**	**24 hours**	**Spring VHF/UHF Field Day**	**CW/SSB**
	29th - 30th	0000 UTC	48 hours	CQ WW DX contest	CW
December	7th	0000 UTC	24 hours	Ten-metre RTTY contest	RTTY
	13th - 14th	0000 UTC	48 hours	ARRL 10 metre contest	CW/SSB
	20th	0000 UTC	24 hours	OK DX RTTY contest	RTTY
	20th - 21st	1400 UTC	24 hours	Croatian CW contest	CW
	27th	0000 UTC	24 hours	RAC Winter contest	CW/SSB

Rules for most contests may be found at *www.hornucopia.com*, courtesy of WA7BNM.

WIA **2015** Callbook **Available** in October

Gear up for the Spring VHF-UHF Day 2014 – fun is in the air!

Roger Harrison VK2ZRH

DATES: Saturday 23 and Sunday 24 November 2014.

Duration in all call areas, other than VK6: 0100 UTC Saturday to 0100 UTC Sunday.

Duration in VK6 only: 0400 UTC Saturday to 0400 UTC Sunday.

Sections – Division 1 and Division 2

A: Portable station, single operator, 24 hours.

B: Portable station, single operator, 8 hours.

C: Portable station, multiple operators, 24 hours.

D: Portable station, multiple operators, 8 hours.

E: Home station, 24 hours.

F: Rover station, 24 hours.

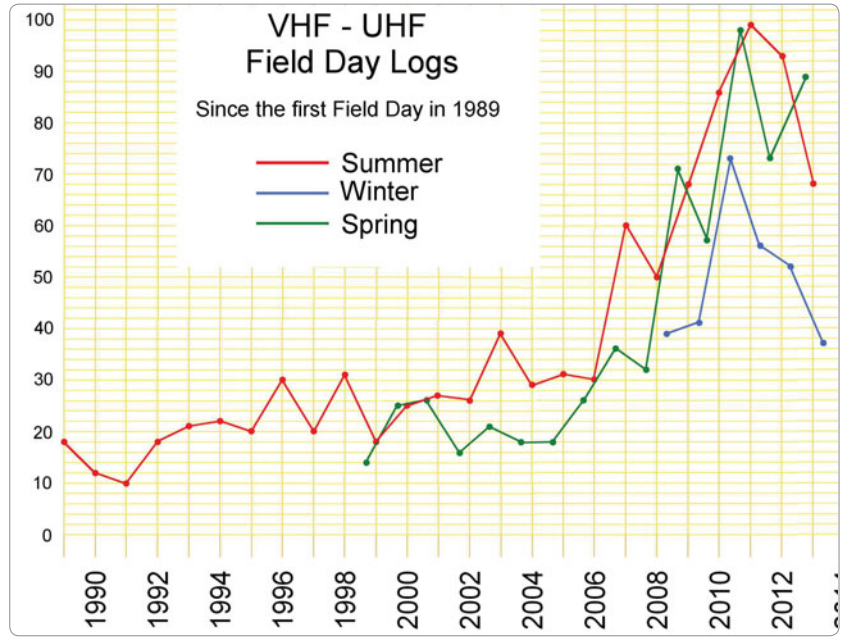

Figure 1: Showing the pattern of VHF-UHF Field Day participation since inception (courtesy of John Martin VK3KM).

Photo 1: First, check that the gear works. Chris VK3ACG and Lou VK3ALB, from Geelong ARC, checking out some 2.4 GHz field day gear before the fun began.

Spring is the time of plans and projects – *Leo Tolstoy.*

Springtime engenders memories of clear, sunny-bright warm days; pleasure is sensed in the very air. Field days in spring can be a pleasant excursion, with some radio fun thrown in for good measure. But spring is also a season of change. On occasion, the weather can remind us winter wasn't really that far back and can try patience in the face of persistence. Whatever, it's all experience, an adventure. While "I'm never doing that again!" might be uttered between gritted teeth after a stormy spring weekend on a field day, there's always the challenge of beating the weather odds and seeing if you can improve your score from the last field day adventure.

As with the 2014 Winter VHF-UHF Field Day, there will be two Divisions, with alternative rules for scoring: Division 1 for grid locator based scoring, and Division 2 for distance based scoring. All the other rules are common to each Division. The rules are being maintained for three contests – Winter 2014, Spring 2014 and Summer 2015. Following this trifecta, the WIA Board will consider future development of the WIA VHF-UHF Field Days.

As announced in September, John Martin VK3KM has stepped down as Contest Manager of the VHF-UHF Field Days and the Board is seeking a new person to act as Manager for Division 1.

Encouraging newbies

There have been many suggestions made about encouraging newly-licensed amateurs to join in the VHF-UHF Field Days, particularly Foundation licensees.

Take an F-call out in the field with you. Invite an F-call to your home QTH for a few hours of the contest. The same goes for any newly-licensed amateur. Get them involved and mentor them through the process of making contest contacts. Pretty soon, the fun seeps through.

Winter Field Day wrap-up

This was the inaugural contest with the two scoring methods. Pleasingly, there were 55 individual participants who submitted logs, quite an increase over the 2013 Winter Field Day of 37, and closer to the numbers for 2011 and 2012, as can be seen from Figure 1 showing the pattern of participation for the WIA VHF-UHF Field Days since being introduced in 1989. The growth in participation over time is a credit to the persistence of John Martin VK3KM who acted as Contest Manager from 1991.

Of the 55 participants in the Winter Field Day, 45 submitted logs for Division 1 and 43 submitted logs for Division 2; 60% of logs were common to the two divisions.

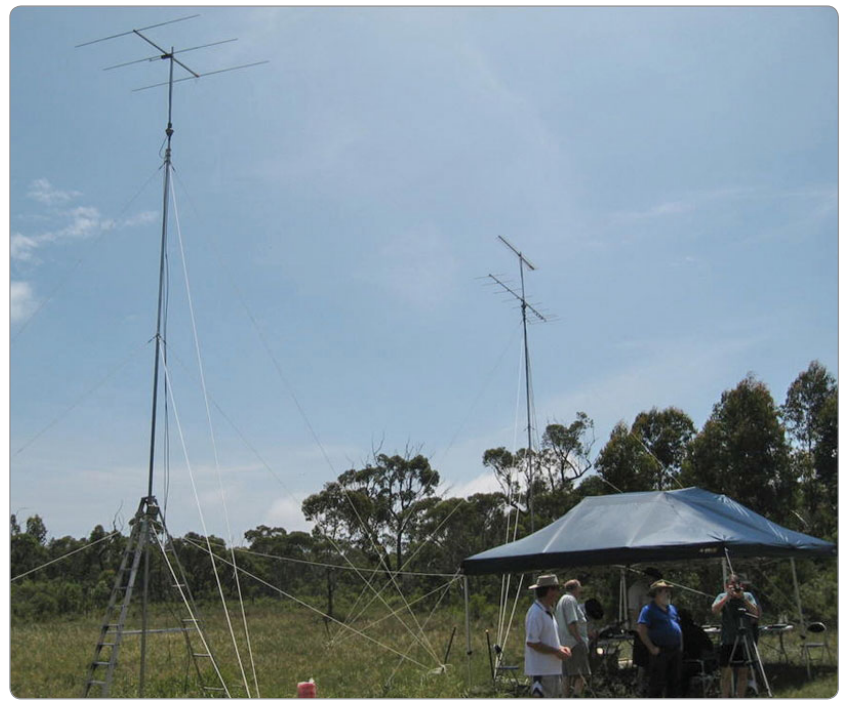

Photo 2: The Blue Mountains ARC seems to have field day antenna erection down to a fine art – 6 m on the left hand mast, 2 m and 70 cm on the right hand mast.

It seems quite a few were willing to have an each-way bet.

Division 2 results are published on page 46.

Contest Exchanges

Contestants need to exchange RS or RST reports and a serial number, as well as exchanging grid-square locators – preferably a 6-digit locator for either Division, or the 4-digit locator as a minimum if entering Division 1. Alternatively, entrants to Division 2 could exchange station coordinates, to allow accurate distance calculations to be made.

Basis of scoring

Division 1 scoring is based on totalling the number of locator squares worked and the number of contacts made, as prevailed in past contests.

Division 2 scoring is the distance worked for each contact.

Common Rules

Operating periods

Stations entering the 8 hour sections may operate for more than 8 hours, and nominate which 8 hour period they wish to claim for scoring purposes.

Entering more than one section

If a portable station operates for more than 8 hours, it may enter both the 24 hour and 8 hour sections. If the winner of a 24 hour portable section has also entered the corresponding 8 hour section, his log will be excluded from the 8 hour section.

If a portable or rover station spends part of the contest period operating from their home station, they may also enter the home station section.

Rover stations

The Rover section is for all portable or mobile stations that operate from more than two locator squares or change locator squares more than twice.

Two operators

If two operators set up a joint station with shared equipment, they may choose to enter Section A, B

or F as separate stations under their own callsigns, or Section C, D or F under a single callsign. If they enter as separate stations, they may not claim contacts with each other.

Multi-operator stations

Portable stations with more than two operators must enter Section C or D. Operators of stations in Section C or D may not make contest exchanges using callsigns other than the club or group callsign.

General

One callsign per station. Operation may be from any location. A station is portable only if all of its equipment is transported to a place which is not the normal location of any amateur station. Portable stations may change location during the Field Day provided the station is dismantled and reassembled each time it moves. You may work stations within your own locator square. Repeater, satellite, EME or cross-band contacts are not permitted. Contacts using digital modes with computer decoding of the received signal are not permitted. Contacts made using modulated light are permitted, but they will be totalled separately and will not contribute to the final all-band score.

Except for CW, no contest operation is allowed below 50.150 MHz. Recognised DX calling frequencies must not be used for contest activity. Suggested procedure for SSB stations is to call on .150 or higher on each band, and QSY up to make the contest exchange.

Repeat Contacts

Stations may be worked again on each band after three hours. If either station is moved to a new location in a different locator square, repeat contacts may be made immediately. If the station moves back into the previous locator square, the three hour limit still applies to stations worked from that square.

Logs

Logs should cover the entire operating period and include the following for each contact: UTC time; frequency; station worked; serial numbers and locator numbers exchanged.

Thanks to the work of Mike VK3AVV, his VK Contest Logger program (VKCL) now provides the facility of logging for Division 1 and Division 2. You can download the program from *www.mnds.com.au/vkcl/*

Division 1 scoring

For each band, score 10 points for each 4-digit locator square in which your station operates, plus 10 points for each locator square worked, plus 1 point per contact. Multiply the total by the band multiplier as follows:

6 m	2 m	70 cm	23 cm	Higher
x 1	x 3	x 5	x 8	x 10

Then total the scores for all bands used.

BONUS POINTS: Portable stations add 10 points for each portable-to-portable contact and add 5 points for each portable-to-home contact. Home stations add 5 points for each home-to-portable contact.

Table 1 sets out the scoring method.

Band	Locators Activated	+	Locators Worked	+	QSOs	x	Multiplier	=	Band Total
	(10 points each)		(10 points each)		(1 point each)		See above		
6 m	10	+	40	+	40	x	1	=	90
2 m	10	+	40	+	30	x	3	=	240
70 cm	10	+	40	+	20	x	5	=	350
etc.									
Overall Total							=	680	

Table 1: Scoring for Division 1.

Division 2 scoring

All contacts are scored on the basis of one point per kilometre, multiplied by the scoring multiplier for each band in Table 2 here. A 200 km contact on 432 MHz would be 200 x 2.7 = 540 points. A 1000 km contact on 50 MHz would be 703 x 1.7 = 1195.1 points.

BONUS POINTS: Portable stations add 10 points for each portable-to-portable contact and add 5 points for each portable-to-home contact. Home stations add 5 points for each home-to-portable contact.

Then total the scores for all bands used.

Cover Sheet

The cover sheet should contain the names and callsigns of all operators; postal address; station location and Maidenhead locator (4- or 6-digit); the section(s) entered; the scoring table; and a signed declaration that the contest manager's decision will be accepted as final.

Blank cover sheets for Division 1 and Division 2 will be available on the VHF-UHF Field Day website page.

Entries

Electronic logs are preferred. Acceptable log formats include: ASCII text, RTF, DOC, DOCX, XLS, XLSX, MDB, or any Open Document format.

The WIA has introduced Field Day log uploading via the WIA website. You will find the link on the VHF-UHF Field Day website page.

Please do not email logs to addresses you may have used in the past.

Paper logs may be posted to the Manager, VHF-UHF Field Day, PO Box 2042, Bayswater Vic 3153. **Logs must be received by Monday, 8 December 2014**. Early logs would be appreciated.

Field Day website

Put this in your browser's favourites: *http://www.wia.org.au/members/contests/vhfuhf/*

If you haven't been there before, this site has comprehensive details about the VHF-UHF Field Days, together with previous rules and results and much general information.

Band	Multiplier	Distance Scoring
50 MHz	1.7	1 point / km to 700 km; thereafter 1 point / 100km or part thereof
144 MHz	1	1 point / km to 700 km; thereafter 1 point / 100km or part thereof
432 MHz	2.7	1 point / km to 700 km; thereafter 1 point / 100km or part thereof
1296 MHz	3.7	1 point / km.
2.3/2.4 GHz	4.4	1 point / km.
3.4 GHz	5.4	1 point / km.
5.7 GHz	6.4	1 point / km.
10 GHz	7.4	1 point / km.
24 GHz & up	10	1 point / km.

Table 2: Division 2 distance based scoring multipliers.

VK Winter Field Day Division 2 Results

Colin Hutchesson VK5DK - Division 2 Contest Manager

Division 2 Results Summary

Top Scoring Stations All Bands

A	B	C	D	E	F
VK5TE	VK5NE	VK5LZ	VK5LZ	VK3MY	VK5KK

Top Scoring Stations Four Bands Only

A	B	C	D	E	F
VK5KBJ	VK3YE	VK3KQ	VK3KQ	VK3MY	VK5ZT

Top Scoring F Call Station Section B: VK5FSKS

Single Operator 24 hr: Winner: VK5TE 24361, 2nd: VK5KBJ 20899, 3rd: VK4OE 14936

Single Operator 8 hr: Winner: VK5NE 33737, 2nd: VK5TE 18191, 3rd: VK5KBJ 15036

Multi-Operator 24 hr: Winner: VK5LZ 117213, 2nd: VK3KQ 83740, 3rd: VK3ALB 59680

Multi-Operator 8 hr: Winner: VK3KQ 36523, 2nd VK3ALB 28886, 3rd VK4WIS 18266

Home Station 24 hr: Winner: VK3MY 37654, 2nd: VK5DK 19736, 3rd: VK3QI 16300

Rover Station 24 hr: Winner: VK5KK 49461, 2nd: VK5ZT 32445, 3rd: VK3QM 11096

The Winter Field Day this year had two divisions with the usual Grid Square scoring and this year the WIA has added a Distance Based scoring division which has been trialled as well.

As usual with a new concept, there have been some minor hiccups which have mostly been overcome.

I must thank Mike VK3AVV for his support in writing the scoring program for Division Two and his support in getting the results checked and adding a few extra details in the results for each station, such as average distance per contact over the entire Field Day log, so each operator will be able to check out this added feature. With Mike being able to check the validity of each contact, some contacts have been removed from the scoring in some instances.

If you have any suggestions on improvements for future Field Days Division 2 scoring or general comments, where there can be improvement, please get in contact with me, so we can make alterations if it is felt that it will make these better Field Days. Thanks for the solid support for Distance Based scoring in the Winter Field Day.

Congratulations to all the winners of the various sections and to all other participants who braved the cold weather in the Southern parts of Australia to go out portable.

Please note that the top score in Section D was VK5LZ The Elizabeth Amateur Radio Club, but as they won the 24 hr section and under the Contest rules they were not eligible to win both sections.

73 Colin Hutchesson VK5DK

ALARA

Margaret Blight VK3FMAB – Publicity Officer

The ALARAMEET is soon to take place and I look forward to meeting up with old friends and making new ones at Port Nelson. Many thanks to the YLs who have worked so hard to make all the necessary arrangements.

ALARA members involved in the International Lace Congress – Christine Taylor VK5CTY

Shirley VK5YL, the ALARA Junior Vice President, and Tina VK5TMC, the Senior Vice President, are well known for having an additional hobby to their radio operating. Their enthusiasm for lace making has been established within the ALARA community and beyond. They have both been very much involved in helping set up the International Lace Conference recently held in Adelaide. It is only the second time the Congress has been held outside Europe, the first being in Tokyo in 2010, and the first time in the southern hemisphere. It was acclaimed a great success.

Shirley VK5YL and Tina VK5TMC were two of the many helpers and both had lace on display. The emphasis this year was on bobbin (or pillow) lace and needle lace. OIDFA (an organization based in France) is an international organization for bobbin and needle lace only. In addition to the actual OIDFA displays there were off-site exhibitions in country areas where any form of lacemaking could be displayed. Most lace is made by YLs but some OMs have made lace over the years. Whoever and whatever type of lace is made it is a time consuming and delicate hobby.

There were over 250 people attending from all round the world. At least 13 countries were represented, from Europe, Scandinavia, the Americas and Asia.

One of the lace exhibits from the International Lace Conference held in Adelaide.

News from VK5

The VK5 ALARA lunch was not so well attended this year as several YLs were elsewhere, holidaying. We do tend to want to get away from the cold weather in the winter, Hi.

A welcome visitor was Jenny VK3WQ who commented; 'Firstly my thanks to the VK5 girls. We had a lovely lunch today preceded by a visit to the Adelaide Town Hall to view one part of the International Lace Exhibition. I had a most enjoyable day.' The YLs present included Myrna VK5YW, Marilyn VK5DMS, both of whom were early members, and Jenny VK5FJAY, Shirley VK5YL, Tina VK5TMC, Christine VK5CTY and Deirdre XYL of John VK5EMI. To make up the group we had Melanie VK5FMEL and Amanda VK5FAAJ with Amanda's two girls Victoria and Catherine, plus four OMs.

News from VK2 – Dot Bishop VK2DB

We attended the August meeting of the Mid South Coast Amateur Radio Club (MSCARC) at Milton and after lunch the President came up to her and said 'we don't have a speaker today'. As a result Dot VK2DB gave a talk about the first airmail flight in Australia; fortunately she had a PowerPoint presentation available from a previous talk. So she was speaker, 'ready or not'.

OM John gave a PowerPoint presentation about the Windom antenna to the Hornsby club at their last meeting and will be giving the same presentation to the MSCARC at their next meeting. We seem to be getting good at giving the talks!

News from VK3

President Jean VK3VIP will be travelling to Shepparton for their next Hamfest where she will be manning the ALARA table.

Young Ladies Radio League 75th anniversary celebration - Christine Taylor VK5CTY

The meeting to celebrate 75 years of the existence of YLRL was held in Vancouver, WA on the west coast of America on 7-9 August, 2014. This location was chosen for the birthday celebration because YLRL was formed on the west coast in 1939. The original meeting was arranged after an YL wrote to CQ magazine asking for any lady amateurs to get in touch with her. She received 12 replies and so the first YL amateur radio group in the world was formed.

Christine VK5CTY represented Australia. There were two other DX YLs and 50 US members and partners. The other two international attendees were Barbara Ulatowska SP2FF and Sarla Sharma VU2SWS. Barbara had lived for many years in America but now lives in her native Poland. Sarla has been a very active DXpeditioner and is a keen CW operator. As she now has a grandchild living in America, she and her OM spend six months each year in the US and the birthday meeting happened during this time.

It was a very memorable meeting. The story of the origin of the UK groups was told and some of the very early members recognized. There were some YLs present who had held their licences and been members for over 40 years. Christine was able to catch up with a number of YLs she had met at international meets including some who came to Australia in 2012.

VK7news

Justin Giles-Clark VK7TW
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w *groups.yahoo.com/group/vk7regionalnews/*

It was great to see VK7 involvement in this year's DATV QSO Party over the weekend of 29/30 August, 2014. Tony VK7AX and the author were involved at different times over the three sessions. We enjoyed local VK content from around Australia along with WR8ATV Columbus, Ohio, W6ATN southern California and GB3HV Farnham, Surrey ATV repeaters. A huge thank you to Peter VK3BFG and all participants.

VK7 ILLW wrap-up

Cape Tourville Lighthouse (AU0119) was a first time activation by NTARC members Kevin VK7HKN and XYL Lyn VK7FROG: Located in Freycinet National Park on the east coast of Tasmania. Equipment was an FT-817ND with five watts QRP and a handmade vertical aerial. Another first was Lyn's very first contact on air. There was even a visit by an ABC reporter who was interested in the event and amateur radio.

CCARC members were busy activating three NW lighthouses this year. Table Cape Lighthouse (AU0039) was activated by members Dick VK7DIK and Eric VK7EK, Roundhill Point (AU0111) was activated by Dick VK7LDK, Dion VK7DB and Marlene VK7LDY and Mersey Bluff (AU0040) was activated by David VK7DC, while Steve VK7BI and Malcolm VK7XS operated from the nearby Bass Strait Maritime Museum. At Table Cape a vertical antenna complete with pirate flag was employed to good effect. At Roundhill lighthouse they used a multi-band vertical and a dual band inverted V for 80 and 40 metres. The Mersey Bluff activation used initially a 40 metre dipole then moved to the signal flag mast and hoisted a 40 metre delta loop which improved contacts.

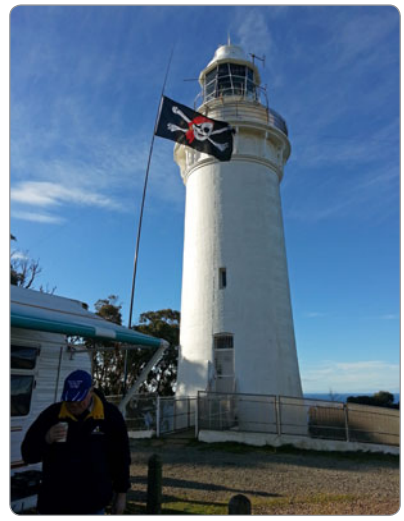


Photo 1: Eric VK7EK at Table Cape Lighthouse. Photo courtesy of Marlene VK7LDY.

Repeater and IRLP node news

The big repeater news relates to the premier repeater in VK7 on Mt Barrow at approximately 1400 m a.s.l. – VK7RAA (147.000 MHz) possibly having to move off that site after June 2015. This is due to a large increase in site fees and licences from Air Services Australia. The catalyst for this increase is the building of a new tower on the site. NTARC are currently considering all options. Watch this space!

Cradle Coast Amateur Radio Club

CCARC welcomes three new Foundation licensees to the bands from assessments held on 10th August. Congratulations to these new amateurs.

Northern Tasmania Amateur Radio Club

Congratulations to Kevin VK7FKJL and Ed VK7FAAU who successfully passed their Foundation licence assessments. Please welcome them when you hear them on the bands. The NTARC August meeting was a presentation by the author on experimentation by VK and ZL amateurs on the MF and LF amateur bands. The presentation covered history, records, equipment, antennas, propagation research, modes and events. As is customary at NTARC gatherings the culinary spread was excellent and all left hopefully with their minds full and certainly their stomachs full! Hi. NTARC operated VK7TAZ during the Remembrance Day contest from the new clubrooms. Stuart VK7FEAT, Peter VK7KPC, Yvonne VK7FYMX and others operated sometime during the 24 hours of the contest and a respectable score resulted. August is also the month for the annual social dinner at the Perth (VK7) Queen's Head Inn. This dinner was well attended with satisfied dinner patrons leaving with full tummies!

The NTARC Community Communications group provided communications for the Springfield Endurance Equine event over the weekend of 24/25 August. Springfield is in north-east VK7 near the township of Scottsdale. The weekend saw 90 riders entering 80, 40 and 20 km rides which kept communications operators and the base recording station busy. Special thanks go to Rick VK7RI for the setup and radio survey along with Idris VK7ZIR, Andre VK7ZAB, Ken VK7KKV, Peter VK7KPC, Rosco VK7RC, Stuart VK7FEAT, Bill VK7MX, Yvonne VK7FYMX, Wayne and Meg Hodge. Rumour has it that even scones, jam and cream were

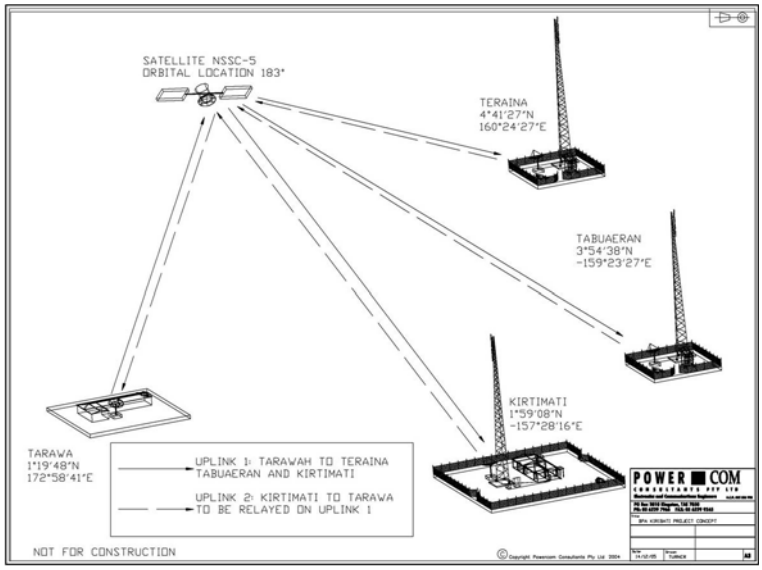
Photo 2: R to L – Steve VK7BI, Malcolm VK7XS and a member of the public at the Bass Strait Maritime Museum. Photo courtesy of David VK7DC.

delivered to checkpoints around the course during the event!

Radio and Electronics Association of Southern Tasmania

A very happy birthday to Bayden VK7BRY who turned 90 years young in August. Congratulations to Don VK7FAAW and Trent VK7FTRS who recently passed their Foundation licence assessment. Reg VK7KK and the author spent an enjoyable evening with the Huonville Scouts giving them a taste of what amateur radio is all about. There were some videos including an ISS contact in VK7, a Morse code scavenger hunt, some amateur radio direction finding practice and a look through the Foundation licence manual. There were many great questions and lots of enthusiasm. The leaders are keen to get the kids involved in their Foundation licence for operation on JOTA and get some equipment into the Scout Hall for amateur operation.

Photo 3: FM radio network spanning 3500 km of the Kiribati nation. Image courtesy of PowerCom.



The REAST August presentation was given by Phil VK7SS and Malcolm Crosse from PowerCom who were involved in projects to build a TV and radio network on the Pacific nation of Kiribati. Phil and Malcolm took the audience through the two projects starting with the TV network with two channels from satellite down links to cover the main island, which involved building everything! They then took us through the FM radio network project to cover 3500 km from one end of the Kiribati nation to the other using satellite up and downlinks. Everything had to be brought in to the islands using some very interesting methods and ingenuity was definitely the name of the game! A huge thank you to Phil and Malcolm.

The DATV Experimenters Night covered some interesting topics with Geoff VK7HAL's VK2 homebrew multi-frequency dipole/buddipole equivalent. Tom VK7TL's Kapton tape, the new REAST IRLP node 6739 using a RaspberryPi, Richard VK7RO's great little DSP receiver - Tecsun PL-360 which provides absolute measurement of the signal strength, Steve VK7OO's miniature digispark Arduino compatible microcontroller and kickstarter Microview OLED display shield. Justin VK7TW showed historic documents about George Flanagan and his amateur radio experimental licence 'XPR' from 1913 courtesy of Eric VK7EK, Warren VK7FEET showed a small three button cell with LED device for placing into balloons and Richard VK7RO shared a photocopy of the very first volume and edition of Model Engineer and Amateur Electrician from January 1898 which outlined the 'New Wireless Telegraphy'. Our videos included a Russian DXpedition to Lost Arctic islands, AmateurLogic. TV and the TXFactor.

VK2 news

Tim Mills VK2ZTM
e *vk2ztm@wia.org.au*

In late June ARNSW held a lecture on and construction of baluns from a kit. The demand for kits was great and stock ran out on the day. Many more have been ordered to keep up with the demand and are available for members to collect, by arrangement, from the Dural site. Order via *balun@arnsw.org.au* Also available are insulators and kevlar wire for antennas. The next event will be on Sunday 9th November and the theme is still being worked out as these notes were being prepared. Details when they come to hand will be given in the VK2WI Sunday broadcasts. The suggested November CW theme has been deferred until next year.

The next and final Foundation course for 2014 at ARNSW is over the weekend of the 22nd and 23rd November at the VK2WI site. On the Sunday all grade license assessments are available. Bookings required for all activities go to *education@arnsw.org.au* The next Trash & Treasure at the VK2WI site will be on Sunday 30th November from 0930 hours followed at 1200 by the Radio Homebrew and Experimenters Group gathering. For major equipment items available check the ARNSW web site *www.arnsw.org.au*

ARNSW is on Social Media on both Facebook and Twitter. Use the usual search systems for the ARNSW sites.

The renovations of the VK2WI site has taken longer than planned, nothing unusual in the building game. The roof was finally finished in August. A new brick toilet building has replaced the older fibro structure. By now all the transmission services have been restored including the two metre and 70 cm beacons with new antennas. These antennas are a pair of square loops on each band. A pair for the six metre beacon are also being assembled and will replace the existing wire dipole.

The VK2WI 3699 Morse transmission now with higher speeds and more text is back and is again being noticed with reports being received. More reports on coverage and the use listerners make of the service would be welcomed. Please do so via an email to *callbacks@arnsw.org.au* please. At the Dural site currently there are four repeaters and six beacon services, plus the broadcast transmitters and the annual power account is now well into four figures. Hence, some acknowledgement of the use and benefit that these services provide would keep those holding the purse strings happier, if possible.

In addition to the 3699 Morse and the Thursday evening VK2BWI sessions, another source is provided by Geoff VK2BGP most evenings at 0900 UTC on 3539 kHz for an hour with speeds between 14 and 25 WPM. In summer he moves up to 40 metres.

The St. George ARS in southern Sydney have plans to provide a Foundation weekend towards the end of the month (October). They will also be providing a large JOTA station over the weekend of 18th and 19th October at Bonna Point reserve, Kurnell. They are seeking support and contact can be made with Paul VK2GX by email *jota@sgars.org* phone 0423 454 626 or the Society site *www.sgars.org*

Summerland ARC have joined in balun kit building with activities at the club rooms at Richmond Hill during September. The Central Coast ARC have commissioned a new 70 cm repeater VK2RDC at Woy Woy on 438.650 MHz with a 91.5 Hz CTCSS tone required. It also has IRPL node 6217 and any questions can be directed to Doug VK2MDC. A reminder of the project night at the Hunter Radio Group meeting on Friday 10th October. Have you completed that project for the 'show & tell?' for the meeting at the NBN TV studios. Westlakes ARC are planning a computer basics course with Michael VK2OB, commencing this or next month.

The Oxley Region ARC held their AGM on 2nd August with Lyle Smith VK2SMI (formally VK2FCVI) taking over the role of President from Henry VK2ZHE. Lyle is also Publicity Officer. Vice President/ Welfare Officer is Charles VK2KCE; Secretary and Public Officer is David VK2FRAB; Treasurer/Education Officer is Larry VK2CLL; Committee members are Mark VK2FMGM, Jim VK2VIV and Paul VK2ICQ; Repeater Chairman, VK2BOR; Station Manager and WIA Liason Delegate Henry VK2ZHE; Oxtales Editors John VK2AYQ and Trevor VK2TT; Webmaster Alex VK2HBF; Club Historian John VK2KHB; Social Director Barry VK2LBG and Member Liaison Delegate Stuart VK2KSM.

NSW WICEN and the regions have a busy month ahead. Illawarra Memory Walk and Northern Rivers training on Sunday 12th. Barrington Tops SAREX on the weekend of the 18th and 19th. Hawkesbury Canoe Classic over Saturday night the 25th into Sunday the 26th.

At the end of August members of the Oxley Region ARC assisted with the Memory Walk in Port Macquarie. Many long time members of NSW WICEN have recently received VRA long service medals. WICEN NSW is a member squad of the Volunteer Rescue Association.

VK4news QTC

Norm Greenaway VK4NP & Mike Petterson VK4MIK

Hervey Bay Amateur Radio Club

Hello from the Hervey Bay Amateur Radio Club (HBARC). The 15th, 16th and 17th of August saw the club participate in the International Lighthouse/Lightship weekend. The HBARC registered and activated the New Burnet Heads Lighthouse, designator AU0104, using the club call VK4CHB.

The weekend started on Friday with all the participants Wayne VK4EU, Norm VK4NP and XYL Shirley, John VK4YQ, Jenny VK4YL, Sue VK4OW and Steve VK4KUS all turning up on location on a bleak windy day; but luckily no rain up to that point.

The gods smiled on us that day as we were able get our camps and antennas up and ready and the generator prepared, very important as Norm needed power for his CPAP machine. The generator, a two kW Honda was also used to power Steve's Kenwood TS-50 with a 20 metre single element Delta Loop on a 4.5 metre mast which, at times over the weekend was at about a 45 degree angle, and probably good for moon bounce! It also powered Wayne's Kenwood TS-2000 with a G5RV antenna at approximately six metres at the feed point.

By the time Friday dinner time came, the icy winds and the rain had picked up. However this was offset with an evening of red wine and good conversation.

Then came Saturday, still wet and windy, and the lighthouse event started. How'd we go, I hear you say? Pretty good, considering the conditions. The total number of contacts on 20 metres was 55, and included a number of Australian lighthouses, two from New Zealand, one from the USA and one from Spain. On 40 metres we made

Photo 1: New Burnet Heads lighthouse.

22 contacts of which seven were Australian lighthouses.

Saturday night saw the winds gust in excess of 40 knots and its accompanying rain resulted in 37 mm being recorded. Most of the camp survived the onslaught, however Sue VK4OW was up at 1 am in the morning re-guying her tent that had partially collapsed - oh where were the cameras, as it would have been an interesting shot of Sue in her soaked PJs frantically resetting her tent.

We woke up Sunday to a bright sunny day, a welcome relief from the wet and windy Saturday. Wayne VK4EU was then to discover his tarp shredded and full of water. The wind however was still quite cold. The event eventually finished and we settled down to another night of wine and merriment.

Monday morning we woke up to a nice sunny day with little wind, giving us a chance to pack up our dry gear. Then home we went for nice hot showers. Being gluttons for punishment, we now await the 2015 ILLW event.

Ten years at Grassy Hill Lighthouse Cooktown 2005 – 2014

The Tableland Radio Group (TRG) recently completed its 10th consecutive year of participation in the International Lighthouse and Lightship Weekend from Grassy Hill Lighthouse at Cooktown using the call VK4GHL. We have seen the road up to the lighthouse develop from a dusty track to a fully sealed and landscaped lookout with the old Grassy Hill Light as a centre piece, as it's been since 1885.

The TRG had six members drive up from the Atherton Tablelands whilst another member, Wayne VK4ARW, rode his motorbike up from the Darling Downs, arriving on the Thursday night and riding back on the Sunday – a round distance of several thousand kilometres.

The TRG met up just north of Mareeba on the Friday and travelled

north, stopping for a lunch break at Lakeland, thence into Cooktown early afternoon to carry out some administration and social duties. We were pleasantly surprised when an offer was made to us to operate from the old Cooktown Radio Station, VIC, which was described in *Amateur Radio* magazine in April 2014. It is situated on Grassy Hill just below the Lighthouse and we gratefully accepted.

On Saturday morning members set up an east west orientated dipole and the FT-897D powered by battery and solar charger. We had the list of participating lighthouses to assist us and were on air soon after 1000 on 16th August. It soon become evident that band conditions were not overly good but many stations were calling and we managed to make contact with lights in the VK 2, 3, 4, 6, 7 and 8 (Todd River Faux Light – which put a smile on our faces!!) areas plus ZL 1, 2, 3 and 6 areas. We also heard USA, UK and OH but the opening was brief.

Pat VK4MUY, Dave VK4FUY, Wilf VK4ZNZ and XYL Helen, Wayne VK4ARW, Bill VK4WL and Mike VK4MIK operated the station and assisted in planning – which is important as ideas from all can improve operations.

We also participated in the AR contest in between lighthouse contacts.

On the Sunday we assisted in the Victory in the Pacific event which was taking place at Rocky Creek War Memorial Park, between Atherton and Mareeba, where Nick VK4YT, Barrie VK4ALK and Martin VK4FMJR were putting on a display using ex defence department radio equipment. We operated on AM and CW into them as did Ross VK4AQ, in Innisfail, and Clyde VK4FCRH, in Ingham. It made the display better as it meant that visitors could hear the old radios in operation plus it highlighted the dedication of those amateurs in having those old radios working so well after 50 plus years.

The Mayor of Cook Shire, Peter Scott, visited us on the Sunday to hear how we went - Cook Shire Council has been supportive of our ILLW activities at Grassy Hill over many years. During the course of the weekend the local Historical Society visited us as well and thought it terrific that radios were in operation at the Old Station once again. The sound of Morse echoing through the building had a magic feel to it as that was the operating mode in 1913 when it commenced operation.

Overall we had a terrific weekend and must thank the organizers of the ILLW for their efforts with this international event plus all who took part.

Photo 2: Wayne VK4ARW operating VK4GHL in the ILLW 2014.

Silent Key — Peter Denne (formerly VK7TNP)

It is my sad duty to inform you of the death of Peter Noel Denne on 31 July, 2014, who was formerly VK7TNP. He was a TV serviceman in his working days and came to the radio class that Richard VK7RO held some years ago.

He enjoyed his later years with his low power HF station. The thing Richard remembers him for was his saying 'the only good use I found for a trapped vertical was to use it to hold up the centre of an inverted vee.'

Our sincere condolences to his family and friends. Vale Peter.

Contributed by Richard Rogers VK7RO.

Participate **Ballarat Amateur Radio Group HAMVENTION** | 19 October

VK6news

Keith Bainbridge VK6RK

Welcome everyone to another month of VK6news. I'm writing this a few days earlier than usual due to nipping down to Albany for a family weekend away. I've had some club input but not all, so my apologies and I'll fill in the gaps next month.

I had a very early submission from the Bunbury club, so it's only fair they get to start the proceedings this month. Over to Norm VK6GOM.

News from **Bunbury Radio Club (BRC)**

Without getting into 'management speak' a significant activity this month was to more clearly define the club's focus. Initially, the club consisted mainly of amateurs from Bunbury, but over time the demographics have changed and the membership has broadened significantly to include several amateurs from the wider south west region of the state. At the last AGM, it was agreed that the title of the club should be changed to the 'Bunbury Radio Club - supporting radio enthusiasts in the South West', to reflect the change in direction. This change also means that we have to develop means to effectively communicate throughout the south west. For our eastern state cousins this encompasses quite a large area. As a result it was decided that once every three months we would hold our meetings at other south west regional locations as follows:

1: August, Busselton.
2: November, Manjimup.
3: February, Collie.
4: May, Harvey.

The August meeting was held at the Freemasons lodge building in Busselton, with a very good turnout. The consensus was that the venue was excellent and the idea of meeting at another location added a component of freshness to our meetings.

At the same AGM, it was decided that in addition to the business meeting we should have some form of technical or amateur related presentation, followed by a social period. Our first guest speaker was Norm VK6GOM who spoke on his experiences with digital modes, particularly RTTY contesting. The author of this article thought he was a brilliant speaker.

By the time this article is read, the roof should have gone on the club room being built at Dicko's VK6FSDU QTH.

It is proposed to hold the next round of licence assessments sometime in November so any club member, or non-member, wishing to upgrade, or sit for a licence please contact Norm VK6GOM on 0438 878 582.

Several members represented the BRC at this year's NCRG Hamfest in Perth. A great time was had by all and our congratulations go out to the organisers, except for those running the raffle as I didn't win a sausage. The club made a modest amount from sales of bits and pieces. We were also represented by Mike VK6MMB and Doug VK6DEW at the Manjimup Hamfeast. According to these intrepid gastrophiles, the food was good and the company even better.

Phil VK6SO gave a brief talk on the Morse practice sessions he runs. Phil is a serious CW devotee and is keen to maintain and propagate its usage. The practice sessions are based on a modified Farnsworth technique and are run Monday to Friday at 1930 hours on 3.515 MHz. Anyone is welcome to join in.

Finally, welcome to two new members, Steve and Richard VK6PZT. Steve hails from Nannup and has just received his Foundation licence. Richard lives at Dalyellup and has a background in medical imaging, initially as a radiographer and then specialising in ultrasound. He has worked in hospitals all over the south west including Bunbury, Busselton, Margaret River, Mandurah, Collie, Bridgetown and Manjimup.

Thanks Norm and all members of the Bunbury Radio Club, it was good to catch up at Hamfest.

Now it's the turn of the Hills group.

News from **HARG - The Hills Amateur Radio Group**

On 16 and 17 August HARG took part in the RD contest operating VK6AHR from our club rooms in Lesmurdie. My thanks go to Ray VK6ZRW for providing the following information. The official operators were Martin VK6ZMS, Miles VK6MAB, Alan VK6PWD and Ray VK6ZRW. Many other members and one prospective new member dropped in and helped out during the two days. The camp fire was going out the back, the barbecue was fired up for a bacon and egg breakfast and Jono VK6FJON cooked his now infamous exploded frankfurters for lunchtime hot dogs that fortunately tasted much better than they looked. While we didn't always have someone on the mike, we did go for the whole 24 hours and had someone manning the station all night.

One fun aspect was the loop that we strung up to see if we could get some 160 metre contacts. We weren't sure exactly how long it was at the time but some online mapping software from the shire shows that it was about 170 metres long. The height varied from about 12 metres up to 18 metres. It wasn't tuned so we used ladder line to a remote auto tuner that limited it to 100 watts. The loop was surprisingly very noisy. Someone has installed something near the club that makes

the lower bands very difficult. We only made one contact outside of VK6 using the loop –a VK2 I believe. It did work quite well on 80, and at stages, gave better results on 40 than the Yagi.

We made a total of 412 contacts for 601 points broken up as follows; 160 m, 23 QSOs on SSB, one on CW and one digital. All other HF bands were SSB contacts – 80 m, 72; 40 m, 55; 20 m, 62; 15 m, 2; 10 m, 2; 6 m, 10 FM and 4 SSB; 2 m 117 FM and one SSB; 70 cm 46 FM and 16 SSB. We used two copies of VK contest log on two separate computers then merged them after the contest. Thanks to everyone who contributed to a fun two days.

The new committee is keen to hear suggestions from members and others for practical activities and technical talks at future meetings. The official contact point for the club is *secretary@harg.org.au* or PO Box 367, Kalamunda. WA. 6926. HARG meetings are held twice a month at our club rooms near the corner of Brady and Sanderson Roads in Lesmurdie. Our social and practical meeting is held on the second Saturday of the month and our general meeting, often with a technical talk, on the last Saturday of the month. Doors open at 1.00 pm for a barbecue lunch and the meeting starts at 2.00 pm. More information at *www.harg.org.au*

Cheers and 73 until next time from Bill VK6WJ, HARG Publicity Manager.

Thanks Bill.

This year's Hamfest saw SOTA making an entrance with a display manned by John VK6NU and Mike VK6MB. John informed me today that SOTA in WA has been officially recognised and activities will commence from 3rd September. I know there are many outdoor types itching to get to the tops of 'them thar hills' to participate. In the attached picture you can see Mike proudly holding his Shack Sloth Trophy for achieving 1000 Chaser points in SOTA. Mike is the first VK6 to reach this milestone.

Photo 1: John VK6NU and Mike VK6MB representing SOTA at Hamfest.

I remember well the excitement of hill topping with my 10 GHz microwave gear back in the early 80s in the UK, I'm sure this will be just as much fun.

Now to Hamfest.

This year's NCRG Hamfest was held very successfully at the usual venue in Ashfield WA. Every year we anticipate numbers being down and every year the turnout surprises us! Approximately 340 people came through the doors or were manning tables which makes this year on a par with the past three or four. The traders supporting the event were Terry Clinch Communications (Terlin), TET Emtron, ICE Communications, Altronics and a static display of information provided by Icom.

The raffle prizes were amazing this year, including an FT-817 and a Wouxun handheld donated by Timberden Plant Hire, Baofeng

Photo 2: Hamfest – again a pleasing turnout with excellent support from the wide VK6 amateur fraternity.

handhelds donated by ICE Communications and Petkovic Air & Gas, A Terlin Outbacker antenna and base, a 1-1 balun from Tet Emtron and several prizes of multimeters, pliers, USB lights, and electronic gizmos all from Altronics.

The first prize was won by Joe VK6BFI who was on holiday in Sicily on the day and had asked Wayne VK6EH to grab some tickets for him. It seems Wayne put his name on the wrong ones and missed out himself!

The third prize was a pleasant surprise for Alisdair VK6KIF, who only decided earlier this year to return to amateur radio after about a 25 year break, a nice way to get back into it!

A full list of prize winners will be available on the NCRG website.

The homebrew contest was well supported this year with some excellent entries. The judges were unanimous in their decision to give first prize to Jack Koncz, the eleven year old son of Steve VK6SMK. His HF down-converter with all surface mount components was a pleasure to behold. Excellent soldering skills in one so young, and no help from Dad! We hope he now goes on to get his licence so he can use the Baofeng handheld donated by ICE Communications! The standard of entries was impressive, hopefully a sign of things to come.

This year the WIA news broadcast and NewsWest was broadcast live from the centre of the Hamfest hall. Onno, Bob and crew did a great job in testing circumstances, well done guys!

The show was attended by WARG, PARG, HARG, BARC and the VHF group, nice to see support from most of the local clubs. There were many traders as well including Fritz VK6UZ taking up 10 tables all by himself and the NCRG had a stand selling off many club bargains.

Photo 3: Bob VK6POP and Onno VK6FLAB at the WIA/NewsWest broadcast position.

If you were not there then you certainly missed out.

Next year's Hamfest will be one weekend later, on the second Sunday of August 2015. This is to avoid a clash with the Avon Descent and to see if promises from eastern states traders that the first weekend is difficult to make, will make a difference.

Finally club news from **NCRG**

The club made an effort in the ILLW weekend this year from the car park in front of the Guilderton/ Moore River lighthouse. The Gingin Shire were most helpful in closing off the carpark for the weekend. We set up a somewhat experimental station rather than our usual big beams and delta loops. We tried a Bushcomm BBA500 wire antenna between two masts and two metre and 70 cm beams with a dual band vertical. The location proved to be somewhat of a challenge as the interference from the 10 MHz coastal radar antennas located only 50 metres from our station and other local noise made HF operating very tedious. These noises hadn't shown themselves on a reccie to the site earlier in the year. Oh well, it was fun!

Finally we have fixed the date for the NCRG Car Boot sale at NPSARC in Whiteman Park. This year we will revert to a Saturday event at the request of many of last year's participants. So put Saturday November 15th in your diaries, please. Sellers welcome from 10 am, buyers from 11 am. Just $5 a bay. Please remember that there is no shelter in the car park, so BYO tables and protective cover! We will be providing a BBQ, soft drinks and the shack will be open to visitors. More info as always on *www.ncrg.org.au* providing I have the time to update the site.

That's it for now. I hope you enjoy the photos we have provided of the events in WA this month and see you all next month.

73 - Keith VK6RK.

Plan ahead

JOTA/JOTI 18

Contact your local Scout or Guide group now.

18 & 19 October

VK3 news Eastern & Mountain District Radio Club

Andrew Scott VK3BQ

In early August the club completed some major antenna works, the final step in bringing the clubroom station back online. In recent times we have upgraded the radios and equipment, however, over the years the elements had taken their toll and the old Wilson beam was retired and replaced with a new A4S triband beam. At the same time the club upgraded the low band wire antennas putting the club station back on air. Many members have been involved in the planning, preparation and successful works on site, thanks to everyone who assisted. The new antennas and equipment was used with great success in the RD contest with club members activating the station. We plan to be more active in HF contests from the clubroom now the station is back and fully operational.

Photo 1: Dave VK3XDA attaching the new A4S antenna.

ATV station

The club took advantage of a WIA grant a number of years back and acquired the parts necessary to build a new digital ATV station. Over the last six months this has been commissioned and is now fully operational. The club transmits live a number of meeting nights a year and the transmitter is turned on most Thursday and Saturday morning clubroom openings. Have a look at the VK3RTV repeater webpage *http://www.vk3rtv.com/* for more information and to watch the transmissions. Thanks to everyone who contributed to getting this operational.

Photo 2: Peter VK3PH and Leyton VK3CLJ at the operating desk.

VK3 D-STAR Users Group meeting

The club hosted the first VK3 D-STAR Users Group meeting in early August. The group talked about the future of the VK3RWN repeater at Olinda and then had a Skype presentation by Michael VK5ZEA on D-STAR and its developing technology. Michael showed off his vast collection of hot spot and homemade D-STAR systems and talked about developing options of the mode. It was an interesting talk. The Victorian D-STAR Users Group continues to grow. If you would like more information email Peter at *vicdstar@gmail.com*

Successful Foundation course

In late August, the club conducted a successful Foundation licence weekend with three successful candidates. Well done to those who passed. We have been working hard on improving the clubroom facilities in Burwood and now are better able to provide license and education classes in comfort.

VK3 SHF test and tune day

On Sunday 9th November the club will again be hosting the 3rd VK3 VHF/UHF and microwave users test and tune morning. This event has been well attended in the past and gives greater Melbourne microwave users the opportunity to dust off the gear after winter and ensure it's working well for the Spring field days and the warmer months. This year we aim to focus on the 3.4 GHz and 10 GHz bands but any gear will be welcome. Bring along your station and have a play in the park. We again plan to have some test equipment and 'experts' to offer assistance and guidance with troubleshooting and operation. It also offers anyone interested in the higher band gear the opportunity to visit and have a look, see what is required and how easy it can be.

Photo 3: Jack VK3WWW and Damian VK3KQ tinkering with the ATV cabinet.

Our club website has much more information on the above, and the clubs general modus operandi – *www.emdrc.com.au*

B . A . R . G .

Ballarat Amateur Radio Group Inc.

Inc. #6953T ABN 44247 200 143.

HAMVENTION

10:00 am SUNDAY 19th OCTOBER 2014

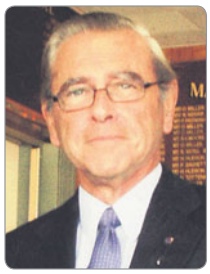
Ballarat Greyhound Racing Club

RUBICON St. REDAN

Admission: $6.00 (Under 15 free)

Enquiries Roger 03 5330 3081

Email: **hamvention2014@barg.org.au**



VK3news Geelong Amateur Radio Club

Tony Collis VK3JGC

Photo 1: The military signals exhibit.

VI3ANZAC Commemorating 'The First Shot' of WW1

The German ship Pfalz was unloading general cargo at Victoria Dock when her captain received a plain language message instructing all German merchant ships to make for the nearest neutral port. On 5 August, 1914, Captain W Kuhiken sailed at daybreak with a pilot, Captain Robinson, and a full coal bunker sufficient to take the ship to South America, not knowing he needed to be through the heads before 10 am.

The Fort at Queenscliff had been instructed by telephone to fly a signal requiring the Pfalz to stop leaving Port Philip Bay. The ship approached the heads sometime after 10 am and either did not see the signal, or chose to ignore it. On orders from Fort Queenscliff, the 6" (150 mm) Mark 7 naval gun at Point Nepean was loaded with a full charge of 56 kg (123 lb) of cordite and a 45 kg (100 lb) projectile. On the Pfalz the roar of a 150 mm gun at close range and the scream of the shell across the bows at such an angle that the missile struck the sea at the ship's side drew Pilot Robinson's attention to the signal flying on the high mast ashore on Point Nepean. He rang for 'full speed astern' to check the ship's way. The ship was arrested and later converted to a troop transport ship HMAS Boorara and took part in the second Australian convoy.

This year, following a request from the WIA, the Minister for Veterans Affairs, in conjunction with the ACMA, authorised the word ANZAC to be part of a call sign to be used to commemorate ANZAC Day starting on 25 April, 2015 through to Remembrance Day. Barry VK3SY with assistance from Jenni VK3FJEN made strenuous representations to the parties involved, indicating that the GARC would like to utilize the call sign VK3ANZAC earlier, to commemorate the 'First Shot of

Photo 2: All three radios active.

WW1' in conjunction with the Fort Queenscliff Museum Association's Commemoration and Memorial Service to be held on Tuesday, 5 August. The station would be located in the Queenscliff RSL, which is situated within the Fort precinct. The prefix 'Victor India' is sometimes allocated by the ACMA for special historical events. This eventuated and the ACMA subsequently allocated the VI3ANZAC call sign to the GARC for a period of 24 hours.

At the invitation of the Fort Queenscliff Museum Association and with the support of the RSL President Lt Col David Millie MBE (Ret) and the committee, the GARC established a radio station in a meeting room adjacent to the main hall. The club also provided a display of war time equipment used for communications, in the entrance to the building.

The installation of the radio equipment occurred on the Sunday preceding the event, with 15 members installing the communications hardware and erecting a G5RV and a couple of two metre antennas. Eighteen GARC members made time available on Tuesday 5 August to operate the VI3ANZAC station. The 40 metre frequency used was 7.080 MHz, with 139 contacts; on 20 metres it was 14.250 MHz with 95 contacts and on two metres the frequency was 146.5 MHz, and several repeaters, with 17 contacts by virtue of the poor location for this station. On the HF side all Australian states, the ACT and Norfolk Island were contacted along with New Zealand, USA, Russia, several former Russian Republics, Belgium, Italy, Germany, France and others. During the course of the day there was appreciation from former servicemen and women returning from the memorial service of the displays of the GARC QSL cards and WW1 - WW2 military signals equipment.

Photo 3: The GARC exhibit of QSL cards and amateur radio pamphlets.

In general accolades were received from contacts made for recognising the significance of the event and activating the 'special event' call sign.

The Queenscliff- Pt Lonsdale RSL sub branch

The GARC would like to extend its thanks and appreciation for the hospitality and support given to the GARC by the Queenscliff RSL in hosting the 'special event' radio station; in particular to President David Millie MBE who could not do enough to ensure the success of our operation. The WIA's Fred Swainton VK3DAC also worked tirelessly to ensure the event's success.

Silent Key

Warren Alsop VK3FWAL

It is with regret that I advise the sudden passing of my son, Warren VK3FWAL on the 7th April 2014.

Although only 41 years of age, he achieved much in his life and had an interest in radio dating back to about 10 years of age and then subsequently joining his brother (Brian VK2FBRI) in the interest and the hobby.

He achieved his "F" call in 2010, but unfortunately his work load and new interest in the forests of Tasmania pushed amateur radio into the background.

He still listened with interest to amateur radio broadcasts and to the end he carried a VX6 with him to stay up to date on what was happening.

His mother Fay and I have been quite devastated by his passing and we will miss him dearly.

Mike Alsop VK8MA

Over to you

International Lighthouse - Lightship Weekend and the RD Contest

I refer to a letter from Ian VK3LA which appeared in the September issue of AR about the problems caused by having both events on the same weekend. He suggested that the WIA and the ILLW people need to get together and rationalize the arrangements for the benefit of both events.

The Editor's response was to the effect that the events are likely to conflict in the future unless someone can convince one group or the other to change their pattern, but that change was unlikely given the status of each event. Ian's comments tell me that some people do not have any idea of the popularity and international reach of the ILLW, so perhaps a little history lesson is necessary.

The International Lighthouse Lightship Weekend was the brainchild of two members of the Ayr Amateur Radio Group in Scotland and it first took to the airwaves in 1998 as an extension of the Scottish Northern Lights award. The event gradually spread in popularity through Europe, the USA and Canada, South America and the Southern hemisphere. The main reason for its popularity is the fact that it is unique in the amateur radio world. It is not a contest, there are no awards, it costs nothing to enter and there are no limitations on bands, modes or power providing they are within the legal limits of the licence holder. Its purpose is to publicise the plight of neglected lighthouses, to expose amateur radio to the visiting public and to remember those brave men and women who served as lighthouse keepers. It is pleasing to note that many lighthouses have received funds and resources to restore them to their former state. Crookhaven Heads in NSW is one example.

This year there were 544 lighthouses in 56 countries entered in the event. Over the past 16 years, some 90 countries and 1,341 lighthouses have participated and registered. Many stations take part in the event but do not bother to send in an entry form. The Association of Lighthouse Keepers holds a Heritage Weekend on the same dates where lighthouses all over the world are open to the public for inspection and fun events. It is also interesting to note that in many countries the third weekend in August is now regarded as Lighthouse Weekend irrespective of any amateur radio involvement.

This potted history is intended to illustrate just how difficult it is to even contemplate moving the ILLW to another weekend. Australia is not the only country where a problem exists with other events. The North American QSO party is held on the same weekend but then there is some contest or other on just about every weekend in the year.

The Remembrance Day contest is managed by the WIA and that is the organization to which member's comments should be directed if they want a resolution to their problem with the two events occurring on the same weekend. It can be taken as read that the ILLW will not be moving from the third full weekend in August.

Kevin Mulcahy VK2CE

Silent Key — Bob Briggs VK3ZL

Robert (Bob) Briggs VK3ZL passed away at Coleraine, Victoria on 7th July, 2014. He was 71. Bob's interest in amateur radio began in the late 1950s - early 1960s at Warracknabeal, Victoria where he was inspired by an active group of local amateurs. Life's challenges associated with marriage, raising a young family and sadly later on, a serious accident, all combined to cause Bob to put his amateur radio interests on hold until 1978 when he was first licensed as VK3BVS.

To say that Bob made up for lost time would be an understatement.

Bob established his first station near Portland and later moved to a property near Merino where he established a fine 'antenna farm'. He made many friends all over the world, mainly Top Band (160 metres) enthusiasts. His regular CW transmissions on 1824.5 kHz were often referred to by his USA friends as 'the VK Beacon' - when they heard Bob, they knew the band was open. Bob worked over 220 countries on 160 metres. K3SX lamented Bob's passing in W3UR's Daily DX newsletter "Bob was a fixture on Top Band and gave many their first VK QSO".

Bob was a craftsman of note when it came to amplifier construction. Many of his highly respected HF and VHF amplifiers are in service around the country and a small number as far away as New Zealand and the USA. He was proud of his amplifiers and treated each one as a very special creation. He was always pleased and somewhat surprised that the amateurs who purchased them liked them as much as he did. Bob attended the South East Radio Group Convention at Mt Gambier for many years and always had a triode power amplifier of some description or an antenna tuning unit entered in the open section of the club's home brew competition. He won many prizes.

Bob also had a long association with the Country Fire Authority - at least 25 years as a communications officer co-ordinating daily radio schedules from his home at Merino.

Bob is survived by his wife Jeannie. He will be sadly missed.

Contributed on behalf of Bob's many friends by Gavin VK3HY, Trevor VK5NC & Reg VK3HAH.

Cruise ship radio - A case study

Peter Ellis VK1PE

How to appreciate being unable to take your radios on holidays.

In April 2014, my wife and I had a 17 night cruise on a moderate sized passenger cruise ship. Either side, and at various ports, international licensing arrangements would have allowed me to use a radio in port (India, UAE, Egypt, Israel, Jordan, Cyprus, Greece). However, this was not to be.

During the research and information gathering stage of the trip preparations, it came to light that ' amateur radios were prohibited items on board, along with knives and swords, spear guns, etc. This effectively meant that I could not take my unobtrusive little five watt handheld radio, unless I wanted to try to run the gauntlet of the prohibition. There was also a notice that said all baggage would be X-rayed, so I would have to be sure of not being caught as the company regulations were severe on its prohibitions. Hence, I also investigated whether the transmit function could be disabled, turning the handheld into a general coverage VHF-UHF receiver, but this was also impractical.

I had some months to ponder what had happened to create the prohibition, and discussed it in various amateur forums online. We decided that some twit of an amateur had probably set up a long wire antenna from the cabin balcony and begun transmitting, causing disruption to ship systems, and creating a no-win prohibition in the process. It came to light that only one cruise line in the world still allows amateur operations at sea. Contrast this to the US Navy that, for approximately 30 years, has allowed some use of amateur gear at sea, after coming to terms with the hobby mainly through the Military Auxiliary Radio System (MARS).

In the end, I went without my radio. My wife did ask a general question, in a mildly accusatory tone, just as we were to depart. We were passing through the United Arab Emirates where there is a prohibition on 'walkie talkies' going on flights as hand luggage. She remembered losing her shopping time when we had to spend several hours negotiating over the same handheld when it was seized at Dubai airport in 2012 [1].

Cruise ships offer guests the opportunity to participate in social and educational events. The daily calendar features many ship-sponsored events, and 'enrichments', plus guest initiated meetings. Hence, several days into the cruise, I asked to schedule a 'Radio and Electronics Get-together' in the program. We had five participants at the first meeting which, I later realised, was not in an area with a bar open at the time. So, the venue was changed for the two subsequent weekly meetings. With another participant at later meetings, we were a group of six: two amateurs (VK1 and South Africa), a UK SWL who had some VHF receivers on board (not prohibited!), several computer people, and a person from ACMA (in essence a Radio Inspector; no name will be used). The latter made the point, after sitting down at the first meeting, that he had briefly listened to the conversation and was prepared to walk away if it had been a bunch of amateurs nattering away about Morse code, etc.

Thankfully, as 'moderator', I had been determined that we ought to be very broad in the discussions. Our hour together each week ranged across many radio and electronics subjects, from an explanation of underwater sound propagation (remember those MH370 pings), via computer systems engineering, to the pervasiveness of LIPDs that everyone now has or knows about, and some interesting tales from the ACMA experiences of sorting out interference issues, and so on. Our small group also had numerous, chance encounters and conversations in the course of the cruise. For instance, the SWL and I discussed his expedition in one port to the local airport where he took pictures of hulks of Russian aircraft that were not able to be seen elsewhere. We all enriched our cruise by sharing our mutual interests.

Reference

1. *'Air travel with radios - An air traveller's tale that almost ended in tears'*, *AR* magazine, August 2012, **Peter Ellis VK1PE.**

Plan Ahead

Adelaide Hills ARS Hamfest	2 November
Yarra Valley ARG Hamfest	9 November
Southern Peninsula ARC Hamfest	30 November

Hamads

WANTED - NATIONAL

Seeking information about Amateurs who served - Particularly Women

The official badge of the RAAF Wireless Reserve authorised in 1935.

Thank you to all who have responded by forwarding information about amateurs who served, or forwarded other appropriate material relating to wartime activities. Some interesting articles are "in the pipeline" and it is encouraging to hear from amateurs who are preparing material for AR. If you are preparing such an article, please let me know as we may have some appropriate support material in the archive.

Jenny VK5ANW/VK3WQ is writing an article about YLs who served during the war either directly, or by providing training facilities. Some interesting new material has surfaced, and it appears that a few of the ladies were possibly involved in the Japanese code-breaking activities, but definitive information is lacking. Can anyone help? Jenny can be contacted via vk5anw@wia.org.au

We are still seeking information about amateurs who were involved in the Coast Watchers. Some tantilising information has come from Greg VK2SM about a VK9 (Port Moresby) who later became a VK2, but we need more - especially names or callsigns.

As mentioned last month, we are aware of war-time, amateur based emergency Civil Defence communications networks in VK2, VK5 and VK6. Presumably similar groups existed in other states. We would like to know more. Perhaps there is some detail buried away in club histories. Can anyone help please?

Please forward comments or material for this project to the History and Archive Committee c/o the WIA Office or contact the WIA Historian, Peter Wolfenden VK3RV via email vk3rv@wia.org.au

P.S. A typo crept into my article about *Walter Hannam.* He was born in 1885, not 1895. Later in the article, where his Army details are included, it is clear that his dob is 1885.

Peter

FOR SALE – VIC

Linear amplifier for the 10, 11, 12 and 15 metre bands, 200 watt PEP, top performer, $80.00.

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Contact Stan VK3BNJ on 03 9743 6708.

WANTED – NSW

Systron Donner 6241a, 6242a, 6243a and 6244a frequency counter, for parts. In particular 40 pin LSI chip SD055095. Let me know what you have.

Contact Chris VK2CY on email *vk2cy@wia org.au* or phone and leave message on 02 9763 1407.

FOR SALE – NSW

FT-1000MP HF dual 100 watt transceiver with matching FL-7000 kW linear amplifier. Both have inbuilt ATU's. $2,500 the pair.

Three element Wilson tri-band beam with 10 metre four section tower with rotator and remote controller, $600. Or $2,750 the lot.

Contact David VK2AYD near Port Macquarie on 02 6585 2647 or *dvdplly@midcoast.com.au*

FOR SALE – SA

The VK5JST Aerial Analyser (*AR* May 2006). Over 10,000 built, and still available from the Adelaide Hills Amateur Radio Society.

For full details see *www.ahars.com.au*

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Contributions to *Amateur Radio*

AR is a forum for WIA members' amateur radio experiments, experiences, opinions and news.

Your contribution and feedback is welcomed.

Guidelines for contributors can be found in the AR section of the WIA website, at *http://www.wia.org.au/members/armag/contributing/*

Email the Editor:
editor@wia.org.au

About Hamads

- Submit by **email (MUCH PREFERRED)** or if written and mailed please print carefully and clearly, use upper AND lower case.
- Deceased estates Hamads will be published in full, even if some items are not radio equipment.
- WIA policy recommends that the serial number of all equipment for sale should be included.
- QTHR means the address is correct in the current WIA Call Book.
- Ordinary Hamads from those who are deemed to be in general electronics retail and wholesale distributive trades should be certified as referring only to private articles not being re-sold for merchandising purposes.
- Commercial advertising on these pages Contact admanager@wia.org.au
- Copy to be received by the deadlines on page 1 of each issue of Amateur Radio.
- Separate forms for For Sale and Wanted items. Include name, address STD telephone number and WIA membership number.

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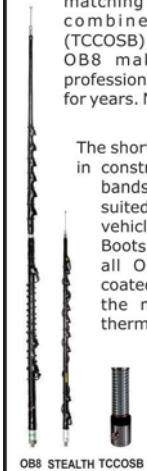

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WIA Functional Committees

The WIA is a membership organisation with a very wide range of complex functions and member services. Core functions and services are administrative in nature (general administrative functions, membership services, examination and callsign management, financial etc…) and are performed by salaried staff.

Volunteers perform a diverse range of highly specialist functions (ACMA liaison, Frequency Co-ordination, Standards liaison, Interference issues, technical support and training and assessment etc.). These volunteers provide the majority of member services, however they have been loosely organised and often overstretched.

The new committee system attempts to structure the WIA's non-core activities into 10 broad functional areas, each comprising a team of volunteers under the direction of the WIA Board. This structure is intended to spread the workload on our volunteers, improve communications between members and the WIA Board, improve services to members, and encourage more people to become involved in the WIA.

WIA Committee Charters

Spectrum Committee

(Regulatory, ACMA, ITU, IARU, Repeaters & Beacons, Standards, Interference & EME, Monitoring Service)
Geoff VK3AFA, Phil VK2ASD (Director), Peter VK3MV, Roger VK2ZRH (Director), Brian VK3MI, Dale VK1DSH, Peter VK3APO, Richard VK2AAH, Gilbert VK1GH, Rob VK1KRM, Noel VK3NH, Doug VK3UM

- Perform all ITU and IARU liaison activities.
- Liaise with, and act as the 1st point of contact for, the ACMA.
- Advise the Board, and enact Board policy in relation to all radio communications regulatory issues and the LCD.
- Represent the WIA to State and Local Government
- Represent the WIA to Standards Australia
- Provide specialist technical advice and coordinate repeater and beacon licence applications and frequency allocation.
- Develop responses to significant and prolonged harmful interference issues affecting amateur radio operations.
- Provide an information resource for EMC/EMR issues.
- Administer the IARU Monitoring Service in Australia
- Provide a technical resource to other committees and the WIA Office.

Technical Advisory sub-Committee (Tech support, Band plans etc.)

John VK3KM, Doug VK3UM, Rex VK7MO, Paul VK5BX, Walter VK6KZ, Barry VK2AAB, Bill VK4XZ, Peter VK3PF, Paul VK2TXT, Peter VK1NPW, John VK1ET, Peter VK3BFG, Eddie VK6ZSE, Peter VK3APO

Administrative Committee

John VK3PZ (Treasurer), Greg VK2GRJ (Assistant Treasurer), David VK3RU (Secretary), Mal VK3FDSL (Office Manager), Phil VK2ASD (President), Chris VK5CP (Vice President)

- Responsible for the efficient and correct operation of the WIA office.
- Responsible for staffing and workplace safety.
- Provide a specialist administrative resource to the WIA office as required.
- Manage contractual agreements.
- Manage business relationships.
- Ensure compliance with the ACMA Business Rules
- Prepare yearly budgets
- Prepare quarterly financial reports for the Board
- Prepare independently reviewed YE financial reports and balance sheets for circulation to the membership prior to each Annual General Meeting.
- Manage insurances and to be responsible for currency of insurance policies.
- Maintain a complaints register.
- Ensure complaints are handled in accordance with WIA policy and any contractual agreements.

Affiliated Clubs Committee

Ted VK2ARA, Mal VK3FDSL (Office Manager), John VK3PZ (Treasurer), Phil VK2ASD (Director)

Communications, Marketing, Publications and AGM Committee

Robert VK3DN (Director), Phil VK2ASD (Director), Jim VK3PC, Graham VK3BB (Broadcast), Roger VK2ZRH (Director) Publications sub-Committee (AR Magazine, Callbook etc): Peter VK3PF (Editor AR), Peter VK3PH (Editor Callbook), John VK3PZ (Treasurer), Ernie VK3FM, Peter VK3AZL, Evan VK3ANI, Ewan VK3OW, Bill VK3BR

- Communication with members and the public:
- Communicate with the membership.
- Publicise WIA activities and initiatives.
- Develop strategies and resources for the promotion of Amateur radio to the public.
- Develop strategies and resources for the promotion of WIA membership to the Amateur community.
- Supervise and/or perform promotional activities.
- Co-ordinate the yearly AGM activities

Education Committee

Fred VK3DAC (Director), Owen VK2AEJ, Ron VK2DQ, Mal VK3FDSL (Office Manager)

- In association with the WIA's RTO and affiliated clubs offering training services, develop and administer the WIA's training and assessment systems.
- In association with the Spectrum Strategy Committee, develop and maintain the various licence syllabi and associated question banks.
- In association with the Community Support Committee and the RTO, develop and maintain the Emergency Communications Operator scheme.
- Ensure the confidentiality and security of all personal information, question banks and examination papers.

Radio Activities Committee

Chris VK5CP (Director), Geoff VK3TL

Contests sub-Committee

Alan VK4SN, Denis VK4AE/3ZUX, John VK3KM, Tony VK3TZ, Kevin VK4UH, Colin VK5DK, James Fleming VK4TJF

Awards sub-Committee

Bob VK3SX, Marc VK3OHM, Laurie VK7ZE, Alan VK2CA, Alek VK6APK, David VK3EW, Paul VK5PAS, ARDF sub-Committee: Jack VK3WWW, ARISS sub-Committee: Tony VK5ZA

- All activities associated with actual radio operation, such as: contests, awards, distance records, QSL services, ARISS, AMSAT, ARDF etc.

QSL Card sub-Committee

Geoff VK3TL, Alex VK2ZM, John VK1CJ, Max VK3WT, Ray VK4NH, Stephan VK5RZ, Steve VK6IR, John VK7RT, Craig VK8AS

Historical and Archive Committee

Peter VK3RV, WIA Historian, (Leader), Drew VK3XU, Linda VK7QP, Martin VK7GN, Ian VK3IFM, Will VK6UU, David VK3ADW, Jennifer VK3WQ/VK5ANW, Roger VK2ZRH (Director)

- Develop, maintain and preserve the WIA's historical and archive collection
- Encourage access to the collection by WIA members and those seeking historical material for publication.

IT Services

Robert VK3DN (Director), Tim VK3KTB

- Provide an IT resource to other committees and the WIA Board.
- Be responsible for the off-site data back-up of all IT systems information.
- To update and maintain the WIA website as required.
- Advise the Administrative / Financial committee in relation to the MEMNET Cloud Service contract.

Community Service Committee

Fred VK3DAC (Director), Greg VK2GRJ (Assistant Treasurer), Ewan VK4ERM (Director), Paul VK5PH

- Develop, promote and co-ordinate all WIA community support activities

New Initiatives

Phil VK2ASD (Director), Robert VK3DN (Director), Roger VK2ZRH (Director), David VK3RU (Company Secretary)

- Think-tank ideas and initiatives to advance amateur radio and WIA membership.
- On approval by the Board, run proof of concept trials.

Club Grants sub-Committee

Reg VK7KK, Peter VK3KCD, Bill VK4ZD

- Manage all arrangements between the WIA and WIA Affiliated Clubs
- In cooperation with the Administrative / Financial committee, manage the Club Insurance Scheme
- Encourage stronger relationships and communications flow between the WIA and WIA Affiliated Clubs
- Encourage increasing WIA membership ratios in Affiliated Clubs
- Manage the Club Grants Scheme
- Identify and bring regional Affiliated Club issues to the attention of the WIA Board.

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